

The Canadian Medical Association Journal



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The Canadian Medical Association Journal

VOL. VII.

SEPTEMBER, 1917

No. 9

ANÆSTHESIA FROM COMMERCIAL ETHER- ADMINISTRATION AND WHAT IT IS DUE TO

BY JAMES H. COTTON, M.A., M.D.

Toronto

EVER since William Long in 1842, and Crawford in 1846, used a sample of so-called ether for anæsthesia, the medical profession have believed that this anæsthesia obtained, was due to ethyl ether. They have continued to use ether (supplied by commercial firms), and you will most likely agree with the statement that the ether as so supplied is at present considered to be the safest and best anæsthetic known. No doubt, but that every anæsthetist has at times mentally criticized the anæsthetic powers of certain cans or makes of ether, and on account of there being no apparent chemical reason, has laid the blame at the door of the patient. But there is a reason, a most vital reason, (other than idiosyncrasy), and that is that ether, ethyl ether, with which we are so familiar, is not an anæsthetic, and the analgesia which comes from the administration of commercial ether, is not due to ether, but rather to the impurities occurring in it.

The research leading up to these radical conclusions was started in the spring of 1915, when Dr. McKicken, of the Toronto General Hospital staff, observed that certain cans of ether emitted an unusual odour, the cause of which was considered worth looking into. Through the kindness of Dr. C. K. Clarke, Professor Hunter, and Dr. Samuel Johnston, we were enabled to undertake the investigation of commercial ethers in the laboratories of pathological chemistry. The various states of the chemical part were carefully checked by clinical observation of the different derivatives

Preliminary paper and demonstration as given before the Canadian Medical Association in June, 1917.

recovered, and it was slowly recognized that some were irritative, some anæsthetic, and some toxic.

IRRITATIVE IMPURITIES

Concerning impurities causing irritation, these may be anterior nasal and due to alcohols or acetones; or nasopharyngeal and bronchial due to aldehydes. Aldehydes irritate, causing mucous in an ether dilution of less than .1 per cent. and it is possible that they may have something to do with ether pneumonia. The objectionable and often irritating odours of commercial ethers are due mainly to organic acids.

ANÆSTHETIC DERIVATIVES

Let us now consider anæsthesia proper. The substances derived, may be divided into two classes:

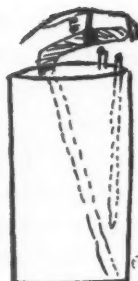
First. Narcotics (producing peripheral congestion and drunkenness);

Second. Analgesics (producing loss of sensation and peripheral vaso-motor spasm).

Absolute di-ethyl ether as has already been stated will not anæsthetize. Its administration produces peripheral congestion, and drunkenness. Prolonged administration causes muscular tremor, shortness of breath with expiratory grunt, a terrible sensation of impending danger, and increased congestion. As much as twenty ounces have been administered to one patient with only this effect. If, however, a small amount of carbon-dioxide be present, the peripheral congestion is relieved, and the patient enters the natural anæsthetic and analgesic stages. In order, therefore, to obtain anæsthesia proper, we must have acting a narcotic such as di-ethyl ether, together with an analgesic such as carbon-dioxide.

The carbon-dioxide-absolute-ether anæsthesia constitutes a type of its own. In a previous paper, read at the Academy of Medicine in Toronto, I compared the action of absolute ether to that of nitrous oxide, with which the carbon-dioxide tension factor is also a necessity. The anæsthesia produced by this carbon-dioxide-ether method is very similar to that obtained from nitrous oxide, and the recovery almost as rapid. It is of interest that Hickman, as early as 1828, used carbon-dioxide alone as an analgesic. Of course, in cases suffering from certain metabolic disorders it is contraindicated.

In practice it was found convenient to administer the carbon-dioxide in solution with ether. In order to do this, a can capable of acting like a syphon-soda bottle was used (such as shown in the diagram), the carbon-dioxide being injected into the ether under high pressure.



So far, only one narcotic in commercial ether has been dealt with, namely, di-ethyl ether. Other narcotic substances occurring in commercial ether and acting the same as di-ethyl ether, are:

- | | |
|---|---|
| 1. Alcohol—2 to 5 per cent. | |
| 2. Di-methyl ether (almost to saturation) | } Only in ethers
made from methy-
lated alcohols. |
| 3. Methyl-ethyl ether (a trace) | |
| 4. Methy-propyl ether (a trace)? | |

These substances are all of a powerful narcotic aid. The last two—methyl-ethyl, and methyl-propyl ether—are very difficult to detect by odour as you will find by the samples, but the first two are easily differentiated.

But, of our ethers on the market, only a few contain carbon-dioxide in sufficient quantities to be of use, and therefore a further analgesic substance besides carbon-dioxide was looked for.

Absolute di-ethyl ether on being passed through a certain process was found to develop remarkable analgesic properties. With it almost major operations were performed with the patient still able to articulate clearly, without pain, and not at all sleepy. Its odour was found to be slightly sweeter than that of ordinary pure ether. It was the stage-acting of this substance that informed us there was something yet to learn concerning ether anæsthesia. The results obtained were so peculiar that men refused to believe them even on the word of our highest medical authorities unless they were witnesses. The symptoms were carefully studied in over two hundred cases. One case of special interest had administered to it in one month twenty-six such anæsthetics, as well as one nitrous oxide, one ether, and one ethyl-chloride. The duration of each administration was from fifteen to thirty minutes. With each of the old anæsthetics the patient was violently ill for some hours, but at no time after the analgesic ether was she to the slightest extent nauseated, even though she had had a meal immediately before. A description given by the patient of her sensations comes as near as possible to the truth:

"After a few breaths of a peculiar substance reminding me slightly of ether, but not so strong, I began to breathe heavily

and quickly, and was conscious of a feeling of exhilaration and excitement all over me. My heart seemed to beat faster, and I felt myself growing hot, especially in the face. Next my legs seemed to go around in a circular motion, and the sensation would spread through my whole body, although at no time did I feel in the least dizzy. At this stage, the dressing began and I could feel water being poured upon my fingers and always knew whether it was hot or cold. The bandages often seemed to stick on being removed but there was no pain. Sometimes when they seemed to be probing or cutting there was a pricking sensation. Dr. Cleland at this period would usually ask if it hurt, and my answer was either "a little" or "not yet". If I said "a little", more of the analgesic seemed to be administered for at this point I usually went completely under its influence, and neither felt the dressing or knew in any way what was going on; although as a rule if one of the doctors spoke to the other, I heard it and made some comment, almost always remembering afterwards what had been said.

"The effect of coming out of this anæsthetic, I can compare to being awakened suddenly from sleep. I do not know how it appeared to onlookers, but I felt as if I regained consciousness instantly. I could at once see, feel, and hear in a perfectly natural manner, and my brain was quite clear. There was one marked peculiarity. For several minutes after becoming conscious, I talked steadily in a slow disjointed way, pronouncing every syllable separately; and I voiced any and every idea that came into my head, exactly as a child does. In fact I seemed to be on the intellectual level of a child of about ten years old, and I must have caused much amusement. I was quite aware of all this at the time but seemed powerless to do otherwise. I sometimes felt a slight oppression in breathing, due to the odour lingering in the room, and would ask the windows to be raised; but there was absolutely no discomfort in any way recovering consciousness, rather a feeling of pleasurable stimulation.

"Several times when only a little was given me, I felt the same sensation which I have described—rapid breathing, accelerated heart action, heat, and excitement, but there the effect stopped, and I remained conscious throughout the dressing, feeling quite normal, neither childish nor talkative, but having absolutely no pain."

Careful concentration and extraction of gases from this analgesia product showed the presence of a gas with similar properties to that of ethylene ($\text{CH}_2\text{-CH}_2$) (and another gas as yet not syn-

thetized). This ethylene, as it was not present in the absolute ether base, must have developed in the process. Ethylene was then manufactured, and added to absolute ether, and a similar analgesic product to that already described was obtained. It is therefore reasonable to believe that ethylene is at least one of the analgesic substances for which we were looking. The method for manufacturing ethylene was through the interaction of alcohol and sulphuric acid. The gas was found to be more efficient if made at 175° (rather than 160° C.). All dangers of production of carbon-monoxide were eliminated by blood testing. In order that an ether-ethylene solution will demonstrate the described properties, the ether to which the ethylene is added must be absolute. The reason this secret of ether anæsthesia has not been discovered before, is that processes to obtain pure ether have never been before originated. Analyses of every ether on the market shows traces of ethylene, and it is its concentration upon which the anæsthetic power of a said ether depends. If, for instance, it is present in sufficient quantity in a sample of ether, it is possible to have the patient lose all sensation before being made drunk by the narcotic solvents. That is, it is now possible with this knowledge to control sensation as well as narcosis. The state of drunkenness which is necessary for a certain grade of analgesia depends entirely upon the condition of the circulation of the patient.

A word here on administration of the ether-ethylene solution may save many from failure. We all recognize in commercial ether anæsthesia, that there is an exciting stage occurring previous to unconsciousness. When, as it is now possible, we can control sensation through ethylene concentration, the question arises, are we going to run analgesia, this, or the other side of the excitation stage. It is very annoying indeed to both surgeon and anæsthetist to decide on a pure analgesia this side of the excitement stage, and not to use a sufficiently concentrated gas-ether. Under such circumstances, the patient may state that they are entirely without feeling, but when major stimulation comes, they may squirm. If now the anæsthetist, instead of using another sample in which the gas is more concentrated, makes the mistake of trying to continue his too dilute gas-ether, the patient is going to enter the ordinary ether excitement stages, while being operated on.

When the anæsthetic stage is deeper than the excitement stage occurring with concentrated gas-ether, the patient is a very long time recovering sensation and reflexes. It is therefore of use in tonsil work.

It is worth bearing in mind that ethylene produced by alcohol sulphuric interaction is not quite absolute and therefore it is possible in the gas-ether described to have yet other analgesic factors besides ethylene. I have already mentioned that in the process-analgesic-ether, there are other gases which develop besides ethylene.

SOME FACTS BEARING ON PRIMARY ANÆSTHESIA

Discussion of our adopted theories and classifications from a physiological standpoint leads us to the tormenting problem of what anæsthesia really is. Professor Alexander McPhedran drew our attention at the Academy of Medicine to the fact that analgesia may be brought about in some cases by making them take a number of deep rapid respirations. A peculiar coincidence probably relative to this, is that the so-called analgesic substances, carbon-dioxide, ethylene, and other ether gases, when present in an ether, cause rapid, deep respirations much sooner than would occur otherwise.

The following experiments was carried out on myself and then checked by ten other cases with similar results.

Thirty deep inspirations were rapidly taken. No change of sensation resulted except a fullness in the head. One half-hour was allowed to intervene, and six to eight full breaths of analgesic ether were then taken slowly. No change of sensation resulted. Fifteen deep rapid breaths of pure air were immediately taken. Almost a complete loss of peripheral sensation followed. Normal breathing restored, while further rapid breathing again reduced it. With myself I was able to eliminate sensation three times in succession with the one dose of analgesic ether by this rapid breathing method.

It is very difficult indeed to imagine an explanation for the above phenomenon, or even to state whether it is a nerve or circulation condition which makes it possible. In one case who had six anæsthetics of analgesic ether there happened to be a large area of granulation tissue exposed. The absolute analgesic stage would start about forty-five seconds after the beginning of deep rapid respirations. At exactly the same time as the loss of sensation occurred in each administration, the granulation tissue blanched but there was no apparent blanching in the skin, or lips, or change in the pulse rate. Unfortunately the blood pressure in this case was not followed. More circumstantial evidence of perhaps some importance is that at the beginning of an ordinary ether anæsthetic,

the blood pressure usually rises, while later at the respiratory stimulation stage, it rapidly drops to some points below normal.

From the above facts it might be possible to theorize tentatively that ether anæsthesia is in part responsible to a relation to a certain condition of the peripheral circulation relative to the nerve endings.

POST OPERATIVE NAUSEA

Just a word as to toxic impurities relative to after-sickness. This phenomenon is from a practical standpoint the great disadvantage of ordinary ether anæsthesia.

In an earlier paper I drew attention to a poisonous gas, X derived by the superheating of ether, when in contact with a metal. A few weeks ago I was enabled to analyze it, and found it to be made up of aldehyde, carbon-dioxide, ethylene, carbon-monoxide and others. As all ether is superheated to a more or less degree, in soldering of the cans, there is a possibility of carbon-monoxide being present. In very small traces it will cause nausea and in an air dilution of less than .15 per cent. it has caused death according to Dixon. Ether on being heated in a closed cylinder at 100°C. for one hour, will, on administration, produce excessive nausea. It is not known whether in this case there is a carbon-monoxide relation, for the research along this line has not been completed, on account of technical difficulties.

There is still another factor in after-sickness, and that is the narcotic group. Most people who take alcohol know that if they become very drunk they are going to suffer from after-sickness, and alcohol is a narcotic. Therefore it follows, that if in a certain sample of ether there is not a sufficient quantity of ethylene (or CO₂) we will, in order to induce analgesia, have to give an overdose of the narcotic solvents and post narcotic sickness must follow.

Before closing I wish to emphasize that this is only a preliminary paper and hardly an introduction to the different fields of research on anæsthesia which have been opened up.

DEMONSTRATION

June 14th, 1917.

Royal Victoria Hospital, Montreal.

Surgeons:

Dr. Archibald,

Dr. Garrow,

Colonel Keenan.

8.45 a.m.

Case 1.

Cat: Age 9 months.

Administered sixty drops of ether (absolute) (saturated with ethylene). Time—two and a half minutes; cat relieved of all sensation, yet capable of walking.

8.55 a.m.

Case 2.

Chinaman: Middle-aged.

Anæsthetic: Absolute ether, carbon-dioxide.

Induction to analgesia three and a half minutes.

Operation: Infected upper arm. Eight incisions were made over biceps. Patient free from sensation but not at all unconscious.

Operation time: Ten minutes.

9.10 a.m.

Case 3.

Cat: Same animal as before.

Administered three ounces absolute ether. Animal became hyperæsthetic. Slightest touch would make it yell. Then a struggling stage started with shortness of breath and expiratory meouw. A further half-ounce caused a short gaspy respiration but no analgesia.

9.20 a.m.

Case 4.

Englishman: Middle-aged.

Anæsthetic: Absolute ether—ethylene.

Induction to analgesia—four minutes.

Operation: Resection splintered bone from elbow. Patient capable of carrying on active conversation and yet was entirely free from sensation.

Time of operation: Fifteen minutes.

CONCLUSIONS

1. Absolute gas-free ethyl-ether is not an anæsthetic.
2. It acts only:
 - (a) As a vehicle for analgesic gases:
 - Carbon-dioxide
 - Ethylene
 - Other gases
 - (b) As a narcotic stimulant.

3. Other narcotics occurring in commercial ether, and acting similar to ethyl ether, are:

Di-methyl-ether	}	Only in ethers/made from methylated alcohols.
Methyl-ethyl ether		
Methyl-propyl ether		
Alcohol		
4. Ether, on being sufficiently superheated in contact with a metal gives rise to carbon-monoxide and other gases.
5. After-sickness from commercial ether administration, for surgery, may be from:
 - (a) Narcotic poisoning (excessive administration of narcotic solvents).
 - (b) Carbon-monoxide poisoning.
 - (c) Surgical shock.
6. Irritating substances occurring in commercial ether are:
 - (a) Alcohols and acetones, causing anterior nasal irritation.
 - (b) Aldehydes, causing naso pharyngeal and bronchial irritation.
 - (c) Organic acids, producing bad odours.
7. Respiration rate is in part a factor in early analgesia.

SHRAPNEL BALLS

THEIR X-RAY CHARACTERISTICS, COMPARED WITH
BULLETS AND OTHER FOREIGN BODIES

BY A. H. PIRIE, M.D.

*Captain C.A.M.C.**Radiologist No. 3 Canadian General Hospital (McGill)*

THE following notes are based on the findings from 10,000 x-ray plates made in about a year at a hospital in France where the writer was in charge of the x-ray department. During that time we made 241 plates of shrapnel balls and 242 plates of bullets. Much more frequently we found pieces of casing of shells, bombs, grenades, etc., and these were shown on 3,846 plates.

The complete analysis of these 10,000 plates is as follows:

Fractures with foreign bodies present.....	4'25	per cent.
Fractures without foreign bodies present.....	11'77	"
Bullets.....	2'42	"
Shrapnel balls.....	2'41	"
Other foreign bodies.....	38'46	"
Lesions of the chest.....	1'87	"
Negative findings.....	29'93	"
Unclassified in the above.....	5'88	"

Total.....	10,000
------------	--------

The "unclassified 5'88 per cent." is made up from such things as exostosis, stone in kidney, stomach plates, etc.

Shrapnel balls may be found entire without any deformity, and every stage of deformity may be met with till an appearance is obtained as if the ball had exploded into small particles. There is one entrance wound only, if the ball is entire, and the wound is rather characteristic.

If the ball has struck an external object before striking the patient, it may break into two or more pieces, and the wounds of entrance will then be multiple. When the ball passes into the body it remains there. Our experience has been that no shrapnel

Read before the x-Ray Section at the forty-eighth annual meeting of the Canadian Medical Association, June 14th, 1917.

ball has passed through the body and come out at the other side the way a bullet so frequently does. When a shrapnel ball meets a bone it becomes deformed according to the resistance offered by the bone, and some of the lead is left behind on or near the bone.

Shrapnel balls of iron have been found but they are more commonly of lead. Three different sizes of shrapnel balls have been found. There are two bones only which in our experience a shrapnell ball cannot penetrate, viz., the femur in its shaft and the vault of the skull. We have found several cases in which the femur has received a direct hit and the ball has broken into two or more pieces and just roughened the surface of the bone.

In one case a direct hit on the vault of the skull fractured the outer table and depressed the inner table, and the ball remained in the bone. We have had no case in which a shrapnel ball entered the brain.

The fibula and the bones of the forearm are always fractured by a direct hit but the tibia may escape, as may also the humerus, but both humerus and tibia may be broken. The small bones of the hand and foot, the ribs and the vertebræ are constantly fractured by a direct hit. The body of a vertebra may receive and lodge a shrapnell ball and the x-ray may show very little damage to the bone. When a shrapnel ball travels through the body without striking a bone it is stopped by the skin far from its point of entry and can be felt under the skin with the finger. The patient usually discovers it himself before it is confirmed by x-rays.

It is sometimes difficult to distinguish a completely deformed shrapnel ball from a piece of iron casing of a shell, but the general rounded appearance of the lead and the want of serrated edges help to distinguish the two. When there are dust-like particles present, caused by the impact of the ball on a bone, there is no difficulty in diagnosing the deformed ball as a shrapnel ball.

The diagnosis of lead from iron by x-rays becomes important where foreign bodies are removed by the help of an electro-magnet. The iron casing of shells and German bullets vibrate, but English bullets and the casing of Mills bombs do not vibrate, when an electro-magnet supplied with alternating current is brought near to them. The finger placed on the surface of the skin can detect this vibration and when it is too feeble to be felt, it can be heard by means of a curved wooden stethoscope.

The following characteristics help to distinguish a broken up shrapnel ball, a broken up bullet, and multiple foreign bodies of iron:

TABLE SHOWING THE CHARACTERISTICS OF

<i>Shrapnel ball broken up</i>	<i>Bullet broken up</i>	<i>Multiple Iron Foreign bodies</i>
The edges are rounded or slightly ragged and not at all or very slightly serrated;	The larger pieces are very ragged;	The edges are serrated like broken cast iron;
One piece may show part of the round outline of the ball;	One piece may show part of the form of the bullet;	Fragments not so numerous as a broken up ball or bullet;
Minute fragments like dust along the track of the ball.	Minute fragments like dust.	When numerous fragments are present they are more widely separated and there are many separate wounds of entry, absence of dust-like particles.

The contrast between the damage done by a bullet, and that done by a shrapnel ball is very marked, when a direct hit is made on the femur or on the skull. A bullet hitting the femur splinters the bone, as it does a glass bottle. At the same time the bullet breaks into pieces, and its fragments and those of the femur are scattered through the limb, or blown out through the skin as if an explosion had taken place. This gives rise to the idea that an "explosive bullet" had been used, but the explosion is not due to any explosive like cordite inside the bullet but to the manner in which it broke itself and the bone. In such a case the entrance wound is very small and the exit wound very large, whereas if the bullet had not struck the bone it would have passed through and have done very little damage provided it missed large vessels and nerves. A spent bullet makes a larger exit wound than one with its initial velocity, as the latter keeps its course with its point leading, whereas a spent one turns round in the tissues and may emerge with its blunt end first. It may be difficult to say which is the entrance and which the exit wound when the bullet has its high initial velocity.

Just as the entrance through the skin may be very small so the entrance wound into a bone may be quite small. In one case a bullet which penetrated into the femur instead of smashing the femur, changed its direction after entering the bone and ran up the medulla, stopping in the cancellous bone near the great trochanter. This seems to show that the great splintering

of a femur when done by a bullet takes place as the bullet emerges and not as it enters the bone.

When a bullet goes through cancellous bone like the head of the femur it may punch a clean hole and cause very little fracturing but one of the worst fractures is caused when it hits the dense bone of the shaft near its junction with the cancellous bone. In this case the splinters of dense bone are driven into and split up the cancellous bone to such an extent that amputation becomes necessary.

When a bullet travels through the soft tissues without striking bone it usually lies with its pointed end directed towards the point of entry, though not pointing directly at the wound. This is a mechanical effect produced by the shape and balance of the bullet.

Quite a variety of foreign bodies have been found in our series, viz., iron, nickel, lead, brass, pewter, copper, aluminium, oyster shell, chalk, stone, clothing, cartridges, foresight and backsight of a rifle, needles, barbed wire, buckles, screws, pieces of machinery. Gas frequently forms from the dirt carried in with a foreign body and is very easily seen in an x-ray plate and even on the fluorescent screen.

ANALYSIS OF A SERIES OF 10,000 PLATES SHOWING BULLETS, SHRAPNEL BALLS, AND FOREIGN BODIES ALSO NEGATIVE FINDINGS

<i>Region</i>	<i>Shrapnel Balls</i>	<i>Bullets</i>	<i>Foreign Bodies</i>	<i>Negative Findings</i>
Abdomen.....	7	6	63	44
Ankle.....	8	1	93	303
Arm.....	9	10	300	247
Back.....	24	26	136	149
Buttock.....	20	13	320	162
Chest.....	13	41	302	194
Knee.....	28	11	307	284
Eye.....	0	0	41	10
Elbow.....	9	3	112	81
Forearm.....	4	4	218	89
Hand.....	5	6	194	164
Foot.....	5	6	115	186
Head.....	8	10	362	239
Leg.....	16	24	325	251
Neck.....	7	13	94	64
Pelvis.....	7	8	31	55
Shoulder.....	31	24	212	203
Thigh.....	33	25	608	215
Wrist.....	1	2	54	45
	241	242	5846	2993

THE RADICAL CURE OF INGUINAL HERNIA

BY F. N. G. STARR, M.B. (Tor.)

ONE naturally hesitates to describe anything new in the radical cure of hernia, when the Bassini, the Halsted, and the Kocher, with their varied modifications, hold such a high place in the esteem of surgeons generally. The operation that I propose to describe, the technique of which I have been developing over a considerable period, might well be described as a modification, or rather an amplification, of the Kocher invagination method, but it is a vast improvement. It means not only the obliteration of the sac, but the formation of a bud opposite the internal ring instead of a funnel mouth, with no transplanting of, or other traumatism of the cord, and with a solid abdominal wall.

An incision is made beginning close to the anterior spine of the ilium one inch above Poupart's ligament and paralleling it, and is carried to a point opposite the spine of the pubes. The skin, superficial fascia, and the fascia of Scarpa are divided, when the aponeurosis of the external oblique is exposed. A nick is made in this with the knife, then the point of the scissors is introduced and the aponeurosis is cut toward the outer end of the skin incision. The index finger is then introduced into the opened inguinal canal to the external ring, and the incision in the aponeurosis is carried down to, but *not* through, the external ring. With the points of a pair of Mayo's dissecting scissors the fibres of the cremaster muscle are separated, then with a pair of forceps the sac is lifted into the wound. By means of a gauze wipe this is readily cleared up to the internal ring, and, if one is careful in separating the external spermatic fascia, this is done with no traumatism of the cord whatever. The sac when freed is opened to make certain that no contents are adherent. The edge of the opening of the sac is now caught in a pair of long, curved, blunt pointed forceps and these are carried through the sac into the abdominal cavity, keeping close to the abdominal wall, and pushed against the wall external to and above the internal ring. An assistant then makes a "nick" not more than a quarter of an inch long into the aponeurosis just

Read before the Surgical Section at the meeting of the Canadian Medical Association, June 14th, 1917.

above the cut edge of the aponeurosis, and the fundus of the sac is pushed through. A pair of forceps is then fastened to this and the curved forceps withdrawn. The invaginated sac is now pulled out as far as it will come. A piece of No. 2 chromic gut threaded double on a long, curved, round needle now catches the edges of this tiny hole in the aponeurosis and also passes through the neck of the sac. This is again carried back through the edges, and again through the sac, when a half knot is tied and the ends of the suture grasped in a pair of forceps. The needle now passes through the original cut edge of the aponeurosis, catches the internal oblique and then Poupart's ligament; this continuous suture is repeated until finally the conjoined tendon is caught, when, with the finger in the external ring, its external pillar is invaginated into the wound and caught with the part of the suture that has passed through the conjoined tendon. Before this is pulled tight the needle passes through the last loop, and thus that first row of the continuous suture is locked. The lower cut edge of the aponeurosis is now sutured to the face of the aponeurosis above and continued back to the original point of starting, thus overlapping the first line completely. The original knot is now completed. One strand of the double strand of gut is now cut and runs back subcutaneously as well as through the fascia of Scarpa, care being taken to surround with the suture each pair of forceps on a vessel so that when this suture is completed, there is no bleeding or even oozing. The skin edges are then united with horsehair. Thus one has the sac dealt with, the canal narrowed, the internal oblique sewn to Poupart's ligament, and the aponeurosis sutured to itself, and the wound closed with one continuous suture, and only one knot in the wound.

To my mind the all important thing in the cure of hernia is the complete obliteration of the sac, and I know of no better method than by invagination. Many times in children I have depended upon this alone and the results have been gratifying.

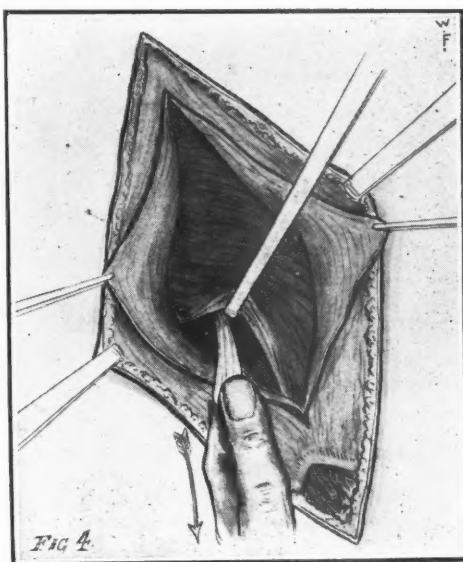
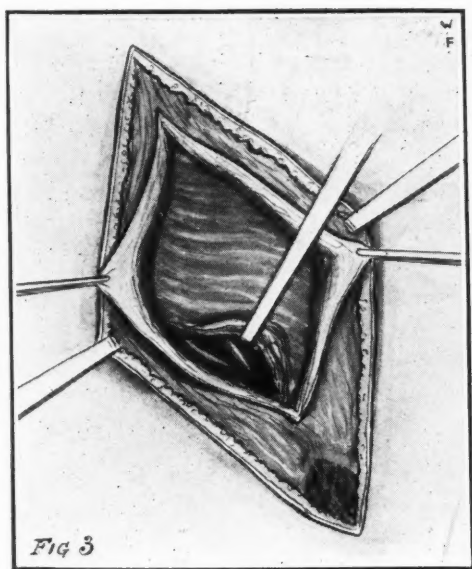
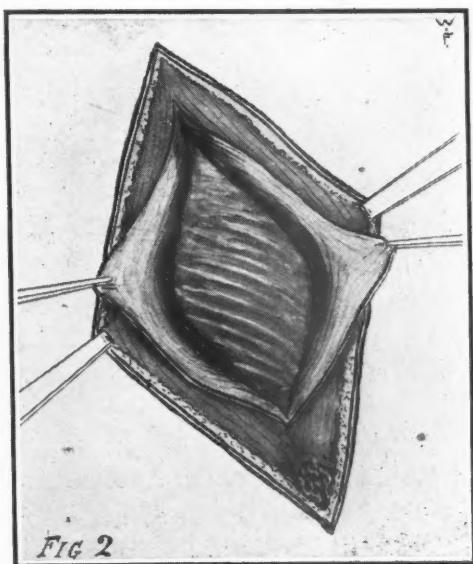
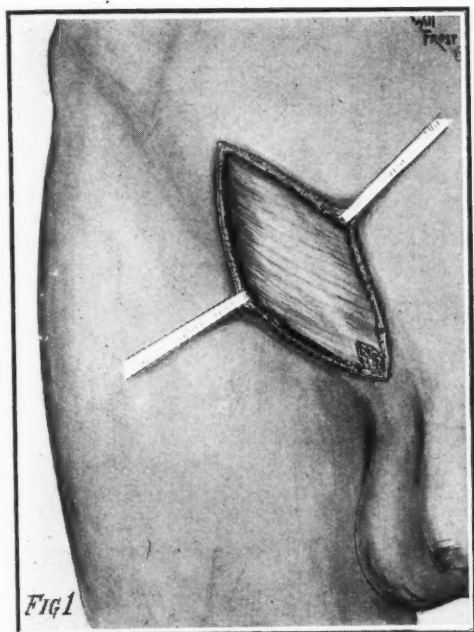
By ligaturing the neck of the sac, or by sewing the neck of the sac, one leaves a funnel-like process opposite the internal ring. This, together with the intra-abdominal pressure directed to that point, can more readily force the formation of a new sac than when one has a "hump" where the intra-abdominal force has been in the habit of striking.

Before leaving the subject of the cure of hernia, I desire to call attention to a method of attack from within the abdomen when one is operating for other conditions and it is desired to repair a hernia at the one sitting. A pair of curved forceps may be

introduced through the internal ring into the sac and the wall of the sac grasped and gradually pulled up into the abdomen until the fundus of the sac becomes completely invaginated. Then the suture with which it is intended to close the abdomen is passed through the neck of the sac and tied to the parietal peritoneum. The suture is then continued along the sac, suturing it to the parietal peritoneum, so that by the time the sac is fully dealt with, the suture has reached the cut edges of the abdominal incision and is then carried along, closing the peritoneum. This makes a perfectly satisfactory cure of the hernia, is easily and quickly done, besides saving a second incision. I have records of seven cases that have stood the test for two years and more, and I therefore have no hesitation in commending it for your consideration.

It seems to me that some day it may be the operation of election. One sees so many cases, especially in fat subjects, where recurrence has taken place, and where one hesitates to re-operate through scar tissue, that I have been prone to open the abdomen and operate from within.

ASSOCIATION JOURNAL



- FIG. 1.—Skin incision exposing external oblique and external ring.
 FIG. 2.—Incision of external oblique exposing internal oblique and Poupart's ligament.
 FIG. 3.—Separating fibres of cremaster.
 FIG. 4.—The sac appearing from between the fibres of the cremaster.

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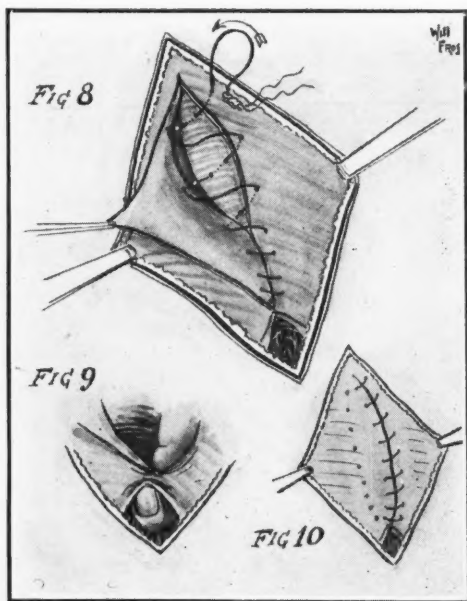
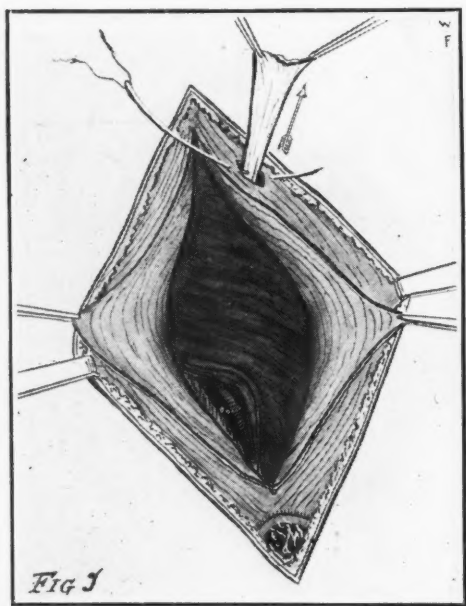
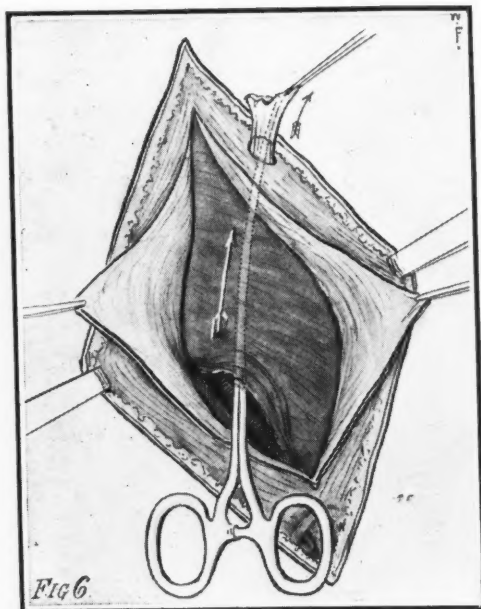
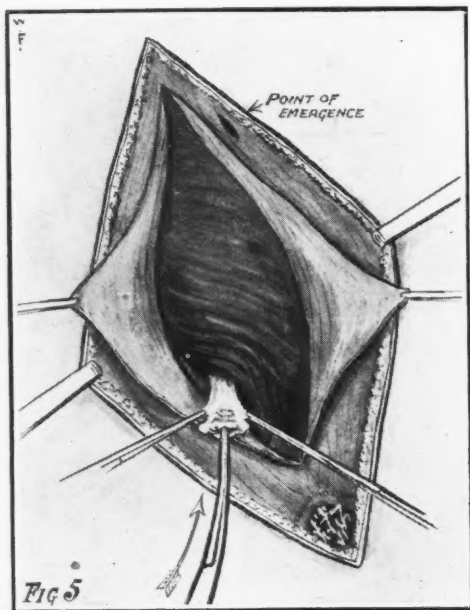


FIG. 5.—The sac opened and the fundus caught in forceps.

FIG. 6.—The fundus invaginated within sac, carried through canal, and internal ring to point of emergence.

FIG. 7.—The sac turned inside out and being sutured to small opening in aponeurosis.

FIG. 8.—This suture continued, catching upper cut edge of aponeurosis, internal oblique, and suturing to Poupart's ligament.

FIG. 9.—Turning outer pillar of external ring into wound to catch with suture through conjoint tendon.

FIG. 10.—The suture of lower cut edge of the aponeurosis to face of aponeurosis above first row of sutures.

AN UNUSUAL FORM OF SUBCONJUNCTIVAL CYST

BY J. W. STIRLING, M.D.

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THE condition which I report to you to-day is certainly a rare one, and in my search of the literature on the subject, I find no exactly similar case.

The patient, A. R., was an elderly gentleman of seventy-six years of age. He came to me complaining of a swelling on the surface of the left eyeball, which he first noticed five months previously and which was slowly increasing in size. There was no history of any injury to this eye, the only thing being some slight recurrent subconjunctival hæmorrhages six years antecedent.

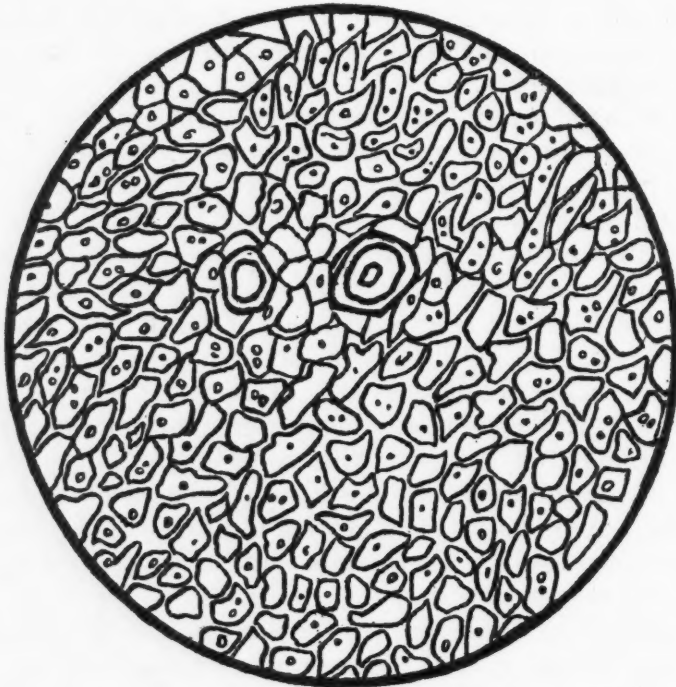
Examination of the eye revealed a large oval semi-opaque swelling starting two millimetres from the outer edge of the cornea, opposite the palpebral fissure and extending outward five millimetres, the vertical diameter being three millimetres in extent. On palpation, it felt resilient with some slight fluctuation. The conjunctiva was adherent to the apex of the swelling but sloped away from it at its base. The growth appeared also to be fixed to the subjacent sclera. There was but very slight conjunctival injection and no tenderness.

On attempting to dissect off the conjunctiva the cyst was perforated near its apex, and clear serous fluid was evacuated, together with seven small opaque bead-shaped bodies varying in size from a small pin head to a split pea. I carefully dissected out the cyst and gave it and its contents to Dr. Oertel, to whom I have to express my thanks for his pathological and microscopical report of the same, which is as follows: The cyst walls consist almost entirely of well formed, large and medium-sized squamous epithelial cells with a good number of epithelial pearls (see drawing). The cells rest in close proximity, forming thick layers, giving the tissue somewhat the appearance of epidermis. From

Read at the forty-eighth annual meeting of the Canadian Medical Association, June 15th, 1917.

these findings it may be concluded that these cysts are of epidermal origin and that they owe their development to proliferation of the lining squamous epithelium, central softening and cystic degeneration, with secondary papillary epithelial projection into the lumen of the mother cyst, this giving rise in similar manner to daughter cysts. The process seems, therefore, comparable in some degree to that of cystitis cystica of the bladder.

The condition is an uncommon one. Cysts, except as traumatic implantation cysts following the imbedding of a foreign body such as an eyelash, epithelium from the conjunctiva or as a lymphangi-



ectasis, cannot occur in the ocular conjunctiva, there being no glands present. Cysts are not uncommon in the palpebral conjunctiva—glands being present.

Uhthoff describes three cases in the *Berliner Klinische Wochenschrift* for 1879 due to trauma but no secondary small cysts were present. One case followed an advancement of the external rectus—five weeks after the operation; the cyst was adherent to the sclera and partly covered by the advanced rectus tendon in its upper third. Contents were clear serous fluid—cell wall was irregular fibrous formation lined with a single layer of nucleated

squamous epithelium. The second case followed a blow with stick—dividing upper lid edge and conjunctiva bulbi—five weeks after healing, a cyst developed due to implantation of five cilia. The third case was due to an insect flying into the eye; four days later a clear cyst size of a pea developed—dissected out. The structure of the cyst walls in the two foregoing cases was indistinctly fibrous lined with flat epithelium.

Uhthoff at the same time considered the cysts as due to dilated lymphatics.

Cysts of traumatic origin have their situation in the sub-conjunctival tissue; inflammatory reaction in their neighbourhood binds them down to the sclera and superjacent conjunctiva; hence they cannot be moved on pressure, whereas lymphangiectasis can be moved about with the conjunctiva and are small and bead shaped.

Although my case gave no history of any injury, I am sure it was of traumatic origin following the implantation of some foreign body, although none was found.

A SPECIAL meeting of the St. Thomas Medical Society and the Elgin County Medical Association was held at Inverarie Heights, Port Stanley, on July 26th, Dr. G. Shannon in the chair. A paper on the "Diagnosis and treatment of gall stones and gall bladder troubles," read by Dr. H. A. McCallum, of London, Ontario, was listened to with great interest, as was also a paper entitled "Pneumonia complicating whooping cough," by Dr. G. E. Thompson, of Springfield. Dr. G. A. Brodie, of Woodstock, addressed the meeting on questions of medical interest in connexion with the work of the Ontario Medical Association, and a resolution was passed to the effect that the Elgin County Medical Association become affiliated with the provincial association. About forty doctors were in attendance.

COMPLICATIONS OF MASTOIDITIS

BY D. H. BALLON, B.A., M.D.

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IN this paper I intend treating very briefly the intracranial complications and the facial paralysis following otitic inflammations.

By way of illustration I have chosen six successful cases operated on by me at the Royal Victoria Hospital as demonstrating some of the complications. These cases include two of lateral sinus thrombosis, two of facial paralysis, a labyrinthine fistula, and a case of cholesteatoma.

Anatomy. Just a word about the anatomy in order to understand clearly the various directions in which pus can travel in the mastoid. We must consider the mastoid as the posterior part of the tympanic cavity. Whenever we have even a catarrhal inflammation of the middle ear, we have a catarrhal inflammation of the mastoid, as can easily be corroborated by skiagrams. For practical purposes the mastoid and middle ear are considered as constructed like a box. If pus perforates the roof we have an extradural abscess, or as a later development the cerebral-temperosphenoïdal-abscess. On the floor is the jugular bulb; on the posterior wall is the lateral sinus and the cerebellum, which can give rise to perisinus abscess, lateral sinus thrombosis, extradural and cerebellar abscess. The anterior wall has the Eustachian tube along which nearly all the middle ear and mastoid infections travel; and also the carotid canal. The outer wall is the drum and the inner wall the labyrinth, with all its possibilities of labyrinthitis and meningitis. Running through the middle we have the facial nerve. By most of these paths bacteria can enter the cranial cavity producing a localized or diffuse, serous or purulent, pachy or leptomeningitis.

Read before the regular meeting of the Montreal Medico-Chirurgical Society, November 17th, 1917.

Received for publication, June 1st, 1917.

EXTRADURAL ABSCESS

An extradural abscess is theoretically a circumscribed collection of pus between the dural covering of the brain and the plate of bone which separates it from the mastoid, but practically we usually find an exposed dura without any intervening bone.

It is generally produced by a virulent infection, in a pneumatic mastoid with a thin plate of bone separating it from the cranial cavity, or else pus exists under pressure in a mastoid with a thick cortex and small pneumatic spaces.

The symptoms are indefinite; they are generally those of a severe uncomplicated mastoiditis. The diagnosis is made at the operation, although we may suspect it. The most common site is between the tegmen antri and the dura covering the temporal lobe. The dura may be normal or covered with granulations thus representing a localized pachymeningitis. The prognosis is favourable where there is adequate surgical drainage by a mastoid operation.

PERISINUS ABSCESS

A perisinus abscess is an extradural abscess. There are no characteristic symptoms. Usually it is accidentally discovered during a mastoid operation. It is the precursor of lateral sinus thrombosis. The prognosis is favourable if there are no septic symptoms, if the lateral sinus is freely exposed and the pus evacuated. The granulations on the dura should be left absolutely undisturbed, as it is nature's method of repair.

THROMBOSIS OF LATERAL SINUS

Sinus thrombosis is usually the result of a chronic suppurating mastoiditis. Of the organisms the streptococcus is the greatest offender. Frequently there is an extension into the sinus of the original septic focus in the mastoid; and the thrombus may extend downwards to the bulb and jugular vein; backwards toward the torcular; inwards along the superior and inferior petrosal sinuses; outwards along the emissary vein.

The thrombus may be complete, or incomplete, that is a mural thrombus not obstructing the lumen, and producing no symptoms. If the clot is sterile it may become organized into fibrous tissue and give rise to no symptoms; but as the clot is usually infected it leads to suppuration, disintegration, and the septic material is thrown into the general circulation.

Symptoms. The first definite symptoms are very characteristic. There is a rigor lasting five to ten minutes, and then a sudden and marked rise of temperature from normal to anywhere up to 105° and in a few hours the temperature drops down to normal and the patient perspires freely. The pulse rate is proportionately increased according to the temperature. Two of my cases while in the hospital had a rigor lasting one half hour. During the afebrile period the patient feels comparatively comfortable. This cycle of septic phenomena which is the basis of diagnosis in the majority of cases is usually repeated every twenty-four to forty-eight hours. The sharp rise of temperature marks the entrance into the blood stream of the septic masses from the disintegrating thrombus, and the rapid fall to the normal indicates their final elimination. Of course there is a previous aural history, generally a chronic intermittent painless purulent discharge, and then a sudden lighting up of the symptoms initiated by some acute infection especially influenza. In these cases we get evidence of retention by the decrease or sudden complete cessation of the discharge, while pain is complained of or increases. An acute exacerbation of the symptoms in any suppurating otitis media is always a danger signal of a possible intracranial complication. There is headache and vomiting. Optic neuritis may be present but its absence is without significance. The leucocytes do not usually exceed twenty thousand. Libman and others have shown streptococci in blood cultures; but the presence of streptococcus in the blood, without clinical evidence, is not sufficient to diagnose sinus thrombosis or to justify opening the sinus. You may get it in uncomplicated suppurative mastoiditis (Duel and Wright), in severe tonsillitis, endocarditis, pneumonia, etc. The physical signs are often completely absent. The aural findings may be quite indefinite. The x-ray offers no assistance in the diagnosis of a thrombus. There may be oedema over the mastoid, tenderness over the mastoid emissary vein and along the course of the jugular vein, and even a moderate induration along the course of an infected vein is not uncommon. The sinus wall may be thickened and covered with granulations. Granulations do not form a healthy dura. In the latter stage the sinus may be gangrenous with a definite thrombus palpable, and pulsations absent or very faint, though I have seen quite marked pulsations present with a definite thrombus.

Prognosis and Treatment. The prognosis is extremely unfavourable unless relieved by operation. The treatment consists

in removing all diseased bone in contact with the sinus in all directions, until the bone is perfectly healthy, and until apparently healthy sinus is reached in both directions—that is, towards the torcular and the jugular vein. Now if the thrombus can be removed and free bleeding obtained at both ends, the jugular vein need not be ligated. If the thrombus has spread from the lateral sinus to the jugular bulb or jugular vein, ligate or resect jugular vein. It cuts off the general circulation and prevents further systemic poisoning. If one is sure of a thrombus and there are metastasis in the joints, ligate the jugular vein first, and then do the mastoid operation.

This form of treatment has been productive of very good results and has reduced the mortality considerably.

BRAIN ABSCESS

The great majority of brain abscesses are secondary to chronic middle ear or mastoid disease. They are usually single, situated in the temperosphenoidal lobe, and twice as frequent as cerebellar abscesses. First there is produced an external abscess and then the dura being in constant contact with the pus undergoes necrosis at some point and thus establishes a direct pathway of infection to the contiguous cerebral structure. The size varies from a pea to such a large size as to displace the brain, thus explaining the lack of symptoms in certain cases.

Symptoms. At the outset we may have symptoms of a localized meningitis—headache, vomiting, and high temperature. Then later the general symptoms of increased intracranial pressure—more or less constant headache of indefinite location, worse at night. The temperature is normal or subnormal and the pulse is slow, getting slower as the abscess increases in size—may be forty to the minute—when the abscess is successfully evacuated the pulse rate rises quickly. The mental dullness is characteristic. The changes in the eye grounds, choked disc, papillitis, optic neuritis may be present with any intracranial disease causing increased pressure,—brain tumour, abscess, meningitis. There are usually no eye changes in temperosphenoidal abscess and in the majority of cerebellar abscesses, but these are common in otitic meningitis, and in slow growing brain tumours. Of the focal symptoms, partial word-deafness is the commonest form of sensory aphasia met with in otitic brain abscess. Motor aphasia is rare. A large temperosphenoidal abscess will cause a pronounced localized contralateral paralysis in face, arm, and hand from transmitted

pressure on the motor area, while pressure on the internal capsule will involve chiefly the lower extremity.

Unless relieved surgically the disease is fatal.

CEREBELLAR ABSCESS

The general symptoms are like those in temperosphenoidal abscess, the subnormal temperature, and slow pulse, though the headache is more severe and localized to the side of the lesion, and vomiting and ocular changes are more frequent. There is rapid emaciation due to the disturbance of some centre influencing tissue metabolism. Focal symptoms may be absent but when present there is no intracranial lesion in which the clinical picture is more definitely characteristic.

1. There is a central nystagmus differing from the labyrinthine in that it is more marked toward the side of the lesion and becomes more pronounced with the progress of the disease.

2. The subjective vertigo is quite independent of the nystagmus.

3. The cerebellar ataxia is towards the side of the lesion uninfluenced by the nystagmus.

4. The unilateral incoordinating ataxia in the arm and hand also corresponds to the side of the lesion as shown in the finger test.

5. Babinski described a symptom which he called adiado-kokinesis. Rotate both wrists as quickly as possible. The rotations are performed very slowly and with apparent labour on the side corresponding to the lesion.

6. Loss of sense of position.

7. Barany's pointing test is a valuable asset in the diagnosis of cerebellar lesions. He has localized certain definite centres in the cerebellar cortex which control the movements of each particular joint or its controlling group of muscles. Normally these centres act harmoniously and coördinate the movements of the various joints. But if a cerebellar abscess has destroyed let us say the centre that controls the movements of the right arm, inwards, then there will be a spontaneous outward deviation of the right arm, and experimentally it will fail to respond to the vestibular irritation; whereas the left arm will give the normal reactions.

The differential diagnosis between cerebellar abscess and acute diffuse suppurative labyrinthitis is very important.

1. In labyrinthitis the nystagmus is more marked toward the sound ear and disappears in two or three weeks while in cerebellar

abscess the nystagmus is stronger towards the diseased ear and becomes more marked with the progress of the disease.

2. In labyrinthitis there is a deviation in both arms opposite to the quick component; in cerebellar abscess there is an error in the hand or arm of the same side as the cerebellar lesion.

3. In labyrinthitis the caloric reaction is absent and the hearing in the diseased ear is absolutely lost. While in cerebellar abscess they are both normal.

4. Incoördination ataxia and adiadokokinesis are absent in labyrinthitis but very prominent in cerebellar abscess.

5. Temperature elevated and pulse varies with temperature in labyrinthitis; in cerebellar abscess the temperature is subnormal, and pulse abnormally slow.

OTTIC. MENINGITIS

In circumscribed meningitis the dura is congested, thickened, or covered with granulations. It is a simple lesion frequently discovered only during the mastoid operation. The best treatment is to remove all diseased bone in contact with the dura so that healthy dura is present; sometimes this is all that is required. Without surgical treatment the patient's life is jeopardized. In serous meningitis if the symptoms are not relieved, make two or more incisions in the dura extending to the subarachnoid space or into the cerebral cortex to relieve the pressure of the advancing oedema. No drains should be introduced. In circumscribed purulent meningitis incise the dura promptly, while in diffuse purulent meningitis free and multiple incisions should be tried. Diffuse suppurative meningitis is not curable; if cured it was a serous meningitis. Cushing has recommended intraspinal injections of urotropin, gr. 45, dissolved in 30 c.c. sterile saline, once or twice daily. The results are uncertain. Lumbar puncture is used to relieve tension.

LABYRINTH FISTULA OR CIRCUMSCRIBED LABYRINTHITIS

A labyrinth fistula is usually due to the defect in the bony wall of the semicircular canals as a result of chronic suppurative otitis media and mastoiditis and is most commonly found in the horizontal canal. The onset is usually sudden and may pass off in a short time. The patient suffers from labyrinthine symptoms of vertigo, disturbance of equilibrium, nausea and vomiting, and nystagmus. There may be more or less loss of hearing and sub-

jective noises. There is usually a spontaneous nystagmus to either side or both sides. The caloric reaction is normal and fistula symptom is present. The treatment is a radical mastoid operation. Under no circumstance should the inner ear be operated on, for then we break down nature's barrier and may extend the disease to the cranial cavity. In a suppurative labyrinthitis where the hearing is gone and the caloric test is absent a labyrinth operation is indicated.

CHOLESTEATOMA

In chronic suppurative otitis media there is a migration of the epithelium of the auditory canal and drum through marginal or large central perforations into the tympanic cavity. It is seen most often in Shrapnell's membrane and it extends by way of the aditus to the mastoid antrum. Here it is deposited in rather compact concentric masses, which grow larger and larger and are very destructive. They absorb the surrounding bone, exposing the brain, lateral sinus, and labyrinth, producing meningitis, sinus thrombosis labyrinthitis or brain abscess. Cholesteatoma is of a pearly grey colour, very offensive, and made up of cholesterin crystals and broken epithelial cells. The treatment is radical mastoid operation.

OTTIC FACIAL PARALYSIS

In this paper we are only considering facial paralysis which is caused by some acute middle ear or mastoid disease. The condition is by no means uncommon and is found more in children than in adults. In two of my cases it occurred in an infant of six months and a child of one year. Influenza, scarlet fever, and severe infections are the most frequent causes. Its onset may be gradual or sudden involving either a whole or a portion of the nerve, and it is always present in the same side as the ear affected. The facial paresis or paralysis is produced by an inflammation of the nerve in its passage through the middle ear, usually caused by pressure. The severe inflammatory process extends and erodes the tympanic wall of the Fallopian canal either directly involving the nerve or else subjecting it to pressure from the inflammatory exudate within the canal or without. There may of course be only a mild perineuritis or neuritis. Occasionally the seventh nerve is involved through a defect or dehiscence in the tympanic wall of the facial canal.

The prognosis is very favourable under prompt and rational treatment. Operate immediately upon the appearance of the facial paralysis resulting directly from middle ear or mastoid suppuration. Remove all diseased bone and granulation. Establish free drainage by a simple mastoidectomy or radical mastoid according to the nature of the lesion. Even before the mastoid operation is performed, a paracentesis should be done to relieve the tension in the middle ear. The prognosis is naturally influenced by the cause, duration, presence or absence of muscle degeneration. If actual division of the nerve has occurred permanent paralysis will result unless the segments are reunited. If paralysis is due to pressure then the prognosis is good providing the drainage is free and early affected; if due to necrosed bone much will depend on the possibility of removing the existing bone lesion and how much damage has already been done to the nerve. In the early stages of facial paralysis the electrical reactions of the facial muscle are diminished; if there is no response to Faradic stimulation the outlook is grave. To prevent atrophy of the facial muscle daily massage and electricity should be instituted as early as possible.

MEDICAL EDUCATION IN JAPAN

BY FRANK W. SCHOFIELD

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THE following brief sketch is not written with the purpose of recording accurate statistics on this subject, but rather to give the reader a general idea of how such work is carried on in this far-off Eastern country.

While en route for Korea I was fortunate enough to meet Dr. Avison (M.B., Toronto) in Tokyo, and to be invited by him to make a tour of inspection of several of the best medical institutions in Japan. Seven of the fourteen medical colleges, as well as the famous Kitasato Institute and Imperial Institute for Infectious Diseases were visited. Thus a good insight into Japanese methods of medical education was obtained.

There are at present between 6,000 and 7,000 medical students enrolled, and hundreds of young men waiting to enter the ranks as soon as accommodation is available. The young men of Japan are determined that lack of education shall not bar their progress in after life; as a result all departments of the universities are likewise full and overflowing. Those who can not secure education during the day, manage to attend one of the many night schools during the evening.

Two standards of medical colleges exist, under the Imperial University. Entrance to the higher grade requires a standard almost equivalent to senior matriculation, while junior matriculation would give a man an excellent pass to the second grade college. The student receives a four year course, and during this period covers the same subjects, and in much the same order as in any American college.

The fee per year varies at different institutions from \$25.00 to \$50.00. This in most instances covers all official expenses. Even these small fees would be prohibitive to our students in Korea, who pay the small sum of \$50.00 for a full four year course. Naturally such small fees do not go far in supporting the institution,

which derives its funds either from the Imperial Government, Local Government, hospital attached or private subscriptions.

In one instance a splendid medical school and hospital were not only entirely self-supporting, but at the same time paying off an inaugural debt of \$400,000.00 at the rate of \$40,000.00 per year, and banking \$5,000.00 annually. The Dean of this college was kind enough to go into the details of the high finance, which was most interesting, but unfortunately too lengthy to repeat here.

Before leaving the student, it might be interesting to follow his career after graduation. Until recently, unless a graduate of one of the universities, a further Imperial Government examination had to be passed, before a license to practise was granted.

Few men, however, pass directly into active practice. If the graduate possesses unusual talent he will most likely receive an honorary position in one of the medical schools as an assistant. After a few years a small salary of \$15.00 to \$25.00 per month may be received which is carefully placed away to help defray the expenses of a trip to Germany, which usually follows three or four years later. Post-graduate work in Germany is very essential before an important position can be obtained.

The average graduate is dependent upon his father for support for several years after leaving college, during which time a small practice is being established.

Some remunerative positions can be obtained in the smaller private hospitals. Here from \$25.00 to \$35.00 is the usual salary. The men are well trained but local conditions make it almost impossible for the physician to obtain a salary sufficient to live on. The majority of the people have not yet been educated sufficiently to appreciate the value of a trained doctor, and also seem to be inately fond of "patent medicines". Moreover, the masses are poor and will not part with their hard-earned money unless they absolutely have to.

Getting back to the subject of medical education, the facilities for teaching are generally excellent. One thing that impressed me more than anything else was the splendid collections of wax-work models. Everything had been made in wax with wonderful dexterity. Even bacterial growths had been so perfectly imitated in wax that one could not distinguish the artificial from the real. These models were of course used largely for demonstration purposes. A unique collection is that of Professor Dohi's at Tokyo. Here, beside many models representing almost every known skin disease, are several series of models depicting in life-like exactness the effect of radium and other similar treatment on malignant growths.

The class-rooms are large and the furnishing satisfactory, but not as elaborate or comfortable as in western institutions. One must, however, remember that many of these buildings are from twenty to thirty years old.

The laboratories are well illuminated usually with continuous glass windows, but the working place per man is often too limited. An excellent idea for obtaining good light for all the class, is the elevated platform. One row of desks follows closely the contour of the room, a second similar row is placed a few feet in the rear, but on a platform raised about eighteen inches above the level of the floor. Thus all students obtain equally good light. This plan seemed to me well worth adopting where space is limited.

The equipment of most laboratories is very good. The apparatus and instruments are, however, almost exclusively of German origin. Japanese material will undoubtedly replace the German as new equipment is required. Excellent native microtomes are on the market, and a good resistant glass ware has recently been produced.

In all the Government medical schools there is evidence of much research work being done. Each department seemed to have plenty of room and equipment and frequently the advantage of an individual library. The latter is, however, very much German. In one instance, out of about twenty journals there were but three in the English language, the others being German. It was interesting to note that two of the three were journals of recent publication.

The professors are men of high standing and like our own frequently appear profound and studious. Practically all are Japanese graduates who have taken post-graduate work for several years in Germany. Germany is the ideal in medical education. This is quite natural as German professors introduced and founded medical science in Japan, many years ago, and since then hundreds of the leading Japanese physicians have taken post-graduate work in that country. Many busts and occasionally a shrine to eminent German professors are to be seen in the university grounds, indicating appreciation of past services.

The students all appear to speak a certain amount of German and many of the text-books are in the same language.

However, there is some consolation in knowing that the Japanese navy is just as English as Japanese medicine is German, and the people generally are markedly pro-British.

Before closing, a few words must be added in praise of the

Kitasato Institute. Dr. Kitasato is so widely known as an eminent scientist that it will be gratifying for many of his friends to know that he is now directing a private institute which is doing for Japan what the Lister Institute is for medicine in England, and the Pasteur Institute for France. A most enjoyable morning was spent with him and his assistants. Working with Dr. Kitasato are Drs. Hata, Shiga, Miyajima, and Kondo, as well as many other younger men of first-rate ability.

Another excellent institution where similar work is being carried on, is the Imperial Institute for Infectious Diseases.

From this brief sketch one can realize how medical education is going ahead in this somewhat isolated country, and need not look with surprise at the fact that the leading bacteriologist in America to-day is a product of its labours.

DR. MASON LITTLE has given up his work with the Grenfell Association at St. Anthony, Newfoundland, and intends to go into practice at Boston, Massachusetts. Dr. Little has laboured along the Labrador Coast for the past ten years and has won the esteem and affection of its people.

DR. WILLIAM FROTHINGHAM ROACH, of Montreal, has been admitted to the freedom and livery of the Feltmakers Company and the City of London in recognition of his work in the field of research at McGill, Oxford, Dublin, and London. Dr. Roach served as medical officer on the West African Medical Staff and has done research work on yellow fever at Para and Manaos, Brazil. He is a member of the British Pensions Medical Board, lecturer on school hygiene at King's College for Women, and surgeon at the London Skin Hospital.

HELPING TO SOLVE A PRAIRIE PROBLEM

HOW THE PEOPLE OF THE WESTERN PROVINCES ARE
ENDEAVOURING TO PROVIDE HOSPITAL ACCOM-
MODATION FOR THEIR RURAL SICK

BY DAVID GRIEVE TUCKWELL

Formerly Mayor of Lloydminster, Saskatchewan, organizer of Municipal Hospitals for the Province of Saskatchewan.

A VERY widespread interest has been aroused throughout the western provinces concerning the question of hospital accommodation and nursing attention for the prairie sick. This matter has been the subject of legislation in the twin provinces of Saskatchewan and Alberta, whilst in Manitoba and British Columbia public interest is crystalizing in favour of similar enactments. Saskatchewan was the pioneer in this movement, and by an Act passed last year made provision whereby groups of rural and urban municipalities may coöperate in the erection and maintenance of hospitals to serve their people. Alberta has followed this good lead, and an Act very similar in character received its final reading and was placed on the statute books of the province during the recent session of the legislature.

The Saskatchewan Municipal Hospital Act provides that two or more rural municipalities may coöperate with one or more urban centres in the establishment of a municipal hospital. Each municipality concerned has the power to levy a rate not exceeding two mills on the dollar, on all assessable property within its borders, for hospital purposes. The managing board is composed of representatives appointed by the councils of the coöperating municipalities, but not necessarily members thereof, and is a body corporate, with powers governing such bodies.

Possibly the feature which has commended itself more especially to the prairie people in connexion with the establishment of these rural hospitals, is the immense benefit which they are calculate to confer in maternity cases and emergency sickness. In the sparsely settled districts of the West, where the local medical men have to travel long distances, and in the almost total absence,

over wide areas, of capable nursing assistance, women are enduring very serious hardships. Not only are they called upon to perform their ordinary household duties, but all too frequently the hard laborious work of the farm falls to their lot; this harsh physical striving has a very pernicious influence, especially during the later pre-natal period, immensely increasing the perils of maternity. It will be easily understood, therefore, how anxiously the prairie women are looking to this rural hospital movement for relief.

As an indication of the esteem in which these institutions are held where they have been established, the following quotation from a letter written by the secretary-treasurer of one of the contributing municipalities may be of interest: "Before the inauguration of the present system (that is of free hospital accommodation) only a small percentage of maternity cases passed through the hospital, the women cheerfully taking a chance on their lives for the sake of helping the farm along. During the past five months nineteen women from this municipality have been in the hospital. We are saving the lives of our women at the small cost of three quarters of a cent per acre."

Broadly speaking four rural municipalities require a hospital providing accommodation for twenty-five beds, besides quarters for the working staff. The cost of such an institution for building and equipment is estimated at from \$1,200 to \$1,500 per bed capacity, or between \$35,000 and \$40,000. Raised by debentures spread over a term of thirty years, and borne by the municipalities in proportion to their assessable value, this capital expenditure represents a very modest increase to the homesteader's taxes. Regarding maintenance, whilst it might be difficult to determine absolutely the cost to any one municipality, careful investigation suggests that from fifty-five to seventy patients might be expected from each rural municipality, with an average stay in hospital of fourteen days, at an estimated cost of \$2 a day per patient. This would mean that for capital cost, on thirty year debentures, bearing interest at 6 per cent., each rural municipality would have to provide less than \$1,000 per annum, whilst for maintenance, should the maximum estimate be realized and seventy patients receive treatment for fourteen days per patient, \$1,960 would be required, or a total cost to each municipality of something like \$2,960. As the Saskatchewan government, however, makes a grant of fifty cents per day for every patient in the hospital receiving treatment, \$490 would be received from this source, leaving the rural municipality to provide less than \$2,500 to meet its debentures, establish

a depreciation fund, and pay the hospital fees of any of its rate-payers or their dependents. When it is remembered that the 297 rural municipalities in the province of Saskatchewan have an average assessable value of \$2,750,000 each, it will be seen that a one mill rate will yield at least \$2,750, or \$250 in excess of the total amount required as the proportion from any one municipality to finance the whole undertaking of building, equipping, and providing free hospital accommodation, and the best of skilled nursing attention for every ratepayer and his dependents who may require it, and that without involving any sense of obligation, as the system is one of coöperative municipal insurance.

A twenty-five bed hospital such as is above referred to, would possibly require a staff of five graduate nurses, including the matron. Express provision is not made for the employment of a medical superintendent, the local doctors throughout the district having free access to the hospital for the treatment of their patients. Should the board, however, favour the employment of a resident medical man, there is nothing in the Act, in either Saskatchewan or Alberta, to prevent this idea being carried out.

Dr. Maurice M. Seymour, commissioner for public health in the province of Saskatchewan, has manifested the very warmest sympathy towards this movement ever since its inception, and owing to his active interest, and that of the Minister of Municipal Affairs, the Honourable George Langley, under whose department the Bureau of Public Health is administered, meetings have been held in many parts of the province where information as to the operation of the system has been afforded. Where such hospitals have been erected, the people are enthusiastic as to the benefit which their operation has conferred. The local medical men are also keenly interested. In one district where such an institution is projected, the local practitioners have agreed amongst themselves to take a post-graduate course in order to brush up their surgery so as to qualify themselves further for their work, the absentee's patients to be attended by his brother physicians, who will in turn take advantage of the like courtesy.

Altogether this movement appears to be one destined to have a far-reaching influence throughout the western provinces, and its operations will be watched with the keenest interest by all who have the well-being of our prairie people at heart. It has received nothing but the warmest sympathy from the medical profession, the pulpit, and the press. Speaking at the convention of rural municipalities of Saskatchewan, held at Saskatoon some weeks ago,

the writer predicted, (a sentiment received with a marked demonstration of approval), that the time was not far distant when a municipal hospital, free of access to the people, would be within reachable distance of every homesteader and his family throughout the province.

In connexion with this movement the Commissioner for Public Health proposes to establish a system of district nurses, whose duty it shall be to visit the country schools, give pre-natal instruction to expectant mothers, and act to some extent as a connecting link between the hospital system and the people living in the more out-lying districts. Where the districts are too remote to adopt the hospital scheme rural municipalities are being encouraged to subsidize local medical men as an inducement to their settlement.

A bonus of twenty-five dollars is also made to needy expectant mothers so that it will be seen that the government of Saskatchewan is striving manfully to solve one of the great pressing problems of the West; or is at least guiding the people wisely in their endeavour to arrive at a satisfactory solution of their own.

A CHILD WELFARE EXHIBIT was held at St. John's, Newfoundland, in August, as a means of stimulating public interest in the prevention of infant mortality. The average death rate among infants of less than one year of age is high throughout the Island, but particularly so in St. John's; during the past eight years the average rate throughout Newfoundland was 140.13 per thousand, and in St. John's 197.08 per thousand.

OZENA AMONG THE VARIOUS RACES OF THE EARTH

By J. N. ROY, M.D.

*Physician to the Hôtel-Dieu, Montreal; late Special
Delegate of the Canadian Government; Laureate of
the Academy of Medicine of France*

AS we have had, through extensive travels during the last ten years, the opportunity of coming into contact with the principal people of the globe, and have thus been in a position to study on the spot anatomical, physiological and pathological conditions, we have considered it proper, at the present time when the rhinologists, who are gathering documentary information in view of next year's International Congress, are particularly interested in the matter, to publish our observations and conclusions in regard to ozena. To escape repetitions, and especially to remain on purely scientific grounds, we shall divide the people of the earth, from an ethnological standpoint, into three large families: the white, the black, and the yellow. Indeed, if we consider carefully the characteristics of the Malays and the Redskins, we find that the representatives of those two races have had the Mongolians for ancestors. The colour of the skin, the shape of their eyelids, the development of their malar bones, the flattening of the base of their nose, the thickness of their hair, and generally speaking their general facial expression, are all arguments in favour of our theory. Moreover, we find in the language of certain Indian tribes of South America a number of expressions very similar to certain Japanese words, and inscriptions and writings, undoubtedly vestiges of those which adorned the shrines of Buddha, are also often found in Mexican ruins.

We shall have little to say about the white race, as such a large number of articles on ozena have already been published; we simply shall draw some conclusions from what we observed in cross breeds of white with either of the other two races.

Read before the "Congrès français d'oto-rhino-laryngologie," Paris, May, 1914.
Received for publication August 1st, 1917.

The blacks are particularly interesting, and a careful study of them in Africa, America, and Oceania reveals some very instructive facts. In the course of an extensive voyage around the Dark Continent, we examined the nasal cavities of nearly five thousand negroes, in twenty-two different colonies. On several occasions, we penetrated into the interior of the country a long distance from the coast line, and were in a position to visit about a hundred different tribes. After making a most careful and minute examination of those aborigines of Africa, all over the country, we may state, considering the large number that came under our notice, that they do not suffer from ozena. We made a particular study of those races which are not full blooded or pure, as the Mulattoes, the Moors of Mauretania, of Arab and particularly of Berber descent, the Peuhl, the Foulahs, whose ancestors were the Egyptian Fellahs, the Hottentots and the Bushmen, in whose veins there is a certain quantity of Mongolian blood, the Danakils, Somalis and Gallas, of mixed Arab breed, and finally the Abyssinians, who at various periods of their history were often in close contact with the Egyptians. Those people also showed no signs of atrophic rhinitis. This disease is also unknown among the negroes we examined in Oceania and in the West Indies, and we had to return to the American continent to find it.

During our stay in Brazil, where three quarters of the population is black, in Central America and in the United States, we were surprised to find a large number of cases. We discovered it in pure breeds as well as among the Mulattoes and the Zambis (the offspring of Negroes and Redskins).

Our excellent confrères, Doctors Chardinal (of Rio de Janeiro) and Jones (of Newport News, Virginia), also found a number of blacks afflicted with ozena. Their findings show that the disease appears less prevalent among the Negroes and Mulattoes than among the white and yellow race, and we are entirely of that opinion. Their mucous membranes in general are very resistant to infection, and it requires a prolonged contact with very virulent microbes to cause a disease.

The yellow race of Asia and its different ramifications which spread practically all over the globe are particularly predisposed to atrophic rhinitis. We found it not only in the Chinese and Japanese, but also in certain Indo-Chinese of Mongol cross breed, in the Esquimos, the Laplanders, the Finlanders, the Malays, the Philipinos, the Hovas, and the Redskins. The frequency of the disease varies according to certain conditions which we shall try to explain now in studying the causes of ozena among the different races.

Contrary to the opinion expressed by F. Fraenkel, Gottstein, Couetoux, Boulay and many other authors, who believe that ozena is preceded by a preatrophic hypertrophic rhinitis, we agree with Bosworth that such is not the case. We examined the Chinese in their own country, in tropical climes and in cold countries such as Canada in winter, and we did not find that climate was a factor in the frequency of the disease.

By studying a large number of cases, we found, generally speaking, that Mongolians have a tendency to atrophy of the anterior third of the inferior turbinal without any pathological symptoms. This is particularly evident if they reside in a hot climate; and in colder countries, we find they suffer from hypertrophic rhinitis, though not as often as whites. The Indians of the American continent are predisposed to that kind of atrophy, which is also found in a lesser degree in the cross breeds. In none of the cases does the enlargement of the inferior turbinal seem to have any influence on ozena, the frequency of which varies according to the more or less contaminated surroundings. Moreover, the African negroes often suffer from hypertrophic rhinitis if they live in a cold damp clime, though they do not show any lesions in their own country. We were astonished at the frequency with which we observed the deviation of the septum in the yellow race and especially in the Indians, among whom we found it in no less than 40 per cent. of all those we examined. This malformation is also more frequently found in the cross breeds than in whites.

We scarcely ever found compensatory hypertrophic rhinitis in the largest side of the nasal cavities in the Mongolians; more often we observed the presence of a muco-purulent discharge with a crusty deposit devoid of odour. This corresponds to a state of pseudo-ozena. In cases of true ozena we found the odour weaker and less repulsive than in whites and blacks. We draw particular attention to this fact and believe it to be due to a physiological increase in the quantity of the nasal secretions proper to that race, which prevents the drying of pus and thus shortens the life of bacteria and partly prevents the formation of their toxins.

The deviation of the septum in the Mongolians, combined with the formation of non-ozenous mucosities in much expanded nasal cavities, is an argument against the theory expressed by Zaufal, who pretends that atrophic rhinitis is found in those individuals who possess very large nasal cavities, where the weakness of the air draughts allows stagnation and decomposition of the secretions. On the other hand, the Negroes—who scarcely ever

show any deviation or spurs of the septum—have the arch of their palate lower than in the white and yellow race, the nose flat and broad with wide nostrils, and in Africa they do not suffer from ozena.

We shall not bring forward arguments to offset the theories of epithelial metaplasia sustained by Siebenmann or against Zarniko's theory of tropho-neurosis, or that of osteomalacia of Cholewa, of primary infection of the sinus, as advanced by Vieus-sens-Gründwall; we shall simply repeat that there is no atrophic rhinitis to be found among the natives of the Dark Continent. The same may be said about tuberculosis which also exists in those countries.

The infectious theory of ozena appears to be the only one which will satisfy every demand. We do not intend to discuss again, as it has already been done on several occasions, the value of the capsulated cocco-bacillus of Löwenberg, of the pseudo-diphtheric bacillus of Belfanti and Della Vedova, and of the small bacillus of Pes and Gradenigo. We believe the cocco-bacillus of Perez (of Buenos Ayres) is really the specific vehicle of the infection, since experiments conducted in the laboratories confirm and prove that theory. The cocco-bacillus when injected into the circulation of an animal is the only one which causes atrophic rhinitis with the characteristic odour of ozena. The other microbes found in the nasal cavities only act as secondary agents.

After examining in both Americas a multitude of Indians belonging to twenty-seven different races, and a large number of cross breeds, we observed that local conditions and surroundings cause a more or less frequent appearance of the malady. Rare enough in those parts of the country where the natives live on high ground scattered in the open air, the disease is found much more frequently in the towns and on the plains where they live under more congested conditions and breathe impure and contaminated air. Among the latter we even found the disease in about 6 per cent. of the population, and as the women are more confined to their homes and live in a more secluded manner than the men, they are more often infected. We observed the same conditions in Malasia, China, and Japan.

Redskins and cross breeds are equally infected by ozena; still the yellow race appears to be more susceptible to the disease than the whites. We believe the reason for this condition is to be found not only in the filth some of the Mongolian races are addicted to, but also to the want of symmetry in their nasal cavities.

The deviation of the septum which we observed very often in them, naturally causes respiratory defects and a greater abundance of stagnant secretions than in the whites—with equal lesions—and the bacillus of Perez finds a field quite prepared for its culture and development.

In Madagascar, our excellent confrères, Doctor Fontoynont and his assistant, Doctor Roton, were kind enough to show us some cases of true ozena among the Hovas. It is interesting to note that that race, which is of Malay descent with a slight mixture of Hindu blood, is the only one which shows any susceptibility to the infection, though they come in fairly intimate contact with the Negroes who do not yet suffer from that disease.

That ozena is distinctly of microbic origin is most conclusively proved by observations in Africa. Of all the blacks we examined in that vast continent, not one was infected. Not even among the natives of mixed descent whose ancestors may perhaps have suffered from the disease, which probably disappeared through the purifying agency of the sun's rays in a sand covered tropical region. And yet, when removed from the slave coast to Brazil—to an equatorial clime, similar to that of their own country—these negroes in contact with the infected aborigines, soon become infected themselves. When transplanted to the northern parts of South America into Central America or to the United States, they brought the disease with them or contracted it in these countries. Their Mulatto or Zambis descendants in turn were infected, and according to statistics, these blacks are more often contaminated than those of pure blood. This is probably due to their closer and more intimate connexions with the white and yellow races, and also to the heredity of the diathesis of the latter, which in a general manner reduces to a great extent their power of resistance.

It is thus very evident that the blacks are not immune to ozena, and it will be interesting to know how long Africa and Oceania will remain free from contamination, and particularly the West Indies, which would seem to be more exposed to the infection since they are inhabited to a great extent by Mulattoes who often visit the American coast.

Now, if we are allowed to draw certain conclusions from the observations we collected from all quarters of the globe, we may say that ozena is an infectious disease and is found in all races. Yet, the disease is less frequent among the blacks than among the whites, and is most prevalent among the yellow race. The marked deviation of the septum on these latter, to which we must

add their state of habitual uncleanness and nasal irritation, produce in their mucous membrane a splendid breeding ground for the microbes.

The blacks of Africa, Oceania and the West Indies are not yet infected, although they are susceptible to the disease, and the small number of Europeans who came under our notice—and they were not afflicted with ozena—does not allow us to express an opinion as to the future appearance of the disease in these countries.

THE Sixth Annual Congress of the Canadian Public Health Association will be held in Ottawa on September 27th and 28th, 1917. The meeting of the Canadian Association for the Prevention of Tuberculosis will also be held in Ottawa on September 26th, 1917.

BACTERIURIA IN SOME CHRONIC DISEASES
WITH SPECIAL REFERENCE TO
INTESTINAL STASIS

By

W. A. BIGELOW, M.D., F.A.C.S.
H. S. SHARPE, M.D., C.M. AND
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Brandon, Man.

IN French's "Index of Differential Diagnosis," we find this statement: "Bacteriuria is a rare symptom of general infection, save one of such intensity that an acute nephritis, associated with a definite hæmaturia, has supervened. Usually its appearance indicates a purely local infection." The writers of this paper believe that the above quotation, which was written in 1912, represented then the almost universal opinion among medical men on the subject of bacteriuria. In scanning the recent literature we see little change of attitude on the part of the great majority, and note only isolated efforts, here and there, to investigate the subject. We have been convinced for some time that the condition known as bacteriuria could not be dismissed thus summarily, and that a systematic culture of the urine in chronic diseases would reveal some interesting facts. Consequently during the past three or four years we have cultured the urine in every chronic condition coming under our notice in connexion with our work. This is a preliminary report of some of our findings up to the present time.

At the outset we wish to make a few observations regarding our methods. Each specimen of urine has been collected with great care, either by a trained nurse specially qualified for this work, or by one of us during the course of a cystoscopic examination. The catheters and containers are auto-clave sterilized. The urethral orifice is thoroughly disinfected. Only the last portion of the urine is taken, so that urethral contamination is avoided.

Read at the forty-eighth annual meeting of the Canadian Medical Association, June 15th, 1917.

Every known precaution is taken to keep out any organism outside of that existing in the bladder or kidney urine, as the case might be.

We have carefully eliminated from this report all acute or subacute conditions, such as acute or subacute appendicitis, acute cholecystitis, acute cystitis or pyelitis, acute pelvic inflammations.

All the cases reported have been subjected to a rigorous and thorough examination in accordance with well recognized modern methods. Every effort has been made to discover hidden foci of infection from which the bacteriuria might have originated. Where, for instance, we report the presence of bacteria in the urine in intestinal stasis cases, it is understood that careful examination has failed to discover any other focus of infection which might account for the urine condition.

In this analysis of the urine findings, in three hundred and fifty cases of chronic disease, the conditions naturally group themselves mainly under several headings, and we shall report them accordingly, viz., tuberculous kidney, chronic pyelitis, chronic arthritis, chronic pelvic inflammatory conditions, intestinal stasis.

1. *Tuberculous Kidney*, 16 cases. The diagnosis was made in every case by the cystoscope, and the urine for culture obtained from the affected kidney by ureteral catheterization. In this list is not included non-secreting dead kidneys. Of the sixteen cases eight gave staphylococci, four gave colon bacillus, and four gave no culture—eleven out of the twelve cases which gave cultures showed pyuria. The average leucocyte count was ten thousand. The average time that symptoms had existed was seven years.

2. *Chronic Pyelitis*, 80 cases. In these cases again the diagnosis was made by cystoscope and ureteral catheterization. Of the eighty cases, thirty-three gave staphylococci, thirty-six gave colon bacillus, eleven gave no culture. Sixty-three out of the sixty-nine cases giving cultures showed pyuria. The average leucocyte count of all cases was nine thousand. The average time that symptoms had existed was 3.3 years.

3. *Chronic Arthritis*, 34 cases. In chronic arthritic conditions we began by attempting to get cultures from the infected joints. We never succeeded in obtaining a culture, thus bearing out the contention of the late Dr. John B. Murphy that the infecting organism in arthritic conditions is not often found in the joint secretion. In thirty-four of these cases urine cultures gave staphylococci in ten cases, colon bacillus in ten cases, and fourteen gave

no culture. In only one case of the twenty giving positive cultures was there pyuria present. The average leucocyte count was ten thousand. The average duration of symptoms before examination was four and a half years.

4. *Chronic Inflammatory Conditions in Pelvic Organs*, 70 cases. In chronic pelvic conditions involving uterine adnexa, there are seventy cases to report. Five of these gave staphylococci, nineteen gave colon bacillus, and forty-six gave no culture. The average leucocyte count was seven thousand, five hundred. The average duration of symptoms prior to examination was seven years. The low percentage of cultures from pelvic cases may be explained by their probable Neisserian etiology.

5. *Intestinal Stasis*, 153 cases. We desire to place special emphasis upon the investigation into the relation of bacteriuria to intestinal stasis, since it is here we have obtained the most striking findings. In this series we exclude stasis caused by malignancy, acute and subacute intestinal obstructions, and tuberculous peritonitis.

The cases of intestinal stasis have all been diagnosed fluoroscopically, with minute attention to such details as time, position, fixation, etc. The barium-buttermilk meal is given and observation made of the stomach and duodenum with reference to position, tone, peristalsis, form, tenderness. In five hours, the normal emptying time of the stomach, a second observation determines this, and also the progress in relation to the ileo-cæcal junction. In eight hours, the normal emptying time of the ileum, another observation determines if there is any delay in the ileo-cæcal region. From this point observations are made every twenty-four hours until the large bowel is empty. We refer with some confidence to the results of the fluoroscopic findings in intestinal stasis, because in a large percentage of these cases which were later operated, not one case belied the diagnosis which the x-ray indicated.

In one hundred and fifty-three cases of intestinal stasis twenty-one gave staphylococci, forty-six gave colon bacillus, while eighty-six gave no culture. In only ten of the sixty-seven positive cases was pyuria found. The average leucocyte count was ten thousand. The average duration of symptoms prior to examination was nine years.

Further analysis of this series gives some interesting information. In 60 per cent. of all cases the stasis involved the last twelve inches of the ileum, or the caecum, or ascending colon. In 30 per cent. of all cases it was a general delay in the colons. In 10

per cent. there was definite delay at the hepatic or splenic flexures, or in the sigmoid. In 12 per cent. of all cases there was accompanying stasis of stomach contents. The average emptying time of the ileum was delayed to eighteen hours, that of the large bowel to eighty-five hours. The relation of stasis to ptosis of the stomach and intestines is not so close as one might suppose. In only 25 per cent. was there ptosis of the stomach, and in only 15 per cent. was there ptosis of the intestines. The relation to the secretory activity of the stomach is represented by an increase of free HCl—the average being thirty-four (normal twenty).

The finding of bacteriuria in 44 per cent. of all cases of intestinal stasis (sixty-seven out of one hundred and fifty-three) may seem a relatively large proportion, but we wish to call attention to the fact that this figure represents a minimum percentage. These sixty-seven cases represent the result of but a single urine culture, in each case taken when the patient first presented for examination—the exigencies of private practice do not permit of unlimited investigation. We doubt not, of the remaining eighty-six cases a fair percentage would have given positive cultures if repeated tests had been made, for it is a fact observed repeatedly by us that these stasis cases have periods of bladder irritability, lasting, it may be only a few hours, when it is possible to obtain a positive urine culture, where prior repeated attempts had failed.

We have gleaned valuable information concerning the possible causation of intestinal stasis from our operative work on these cases. In the first place we have repeatedly secured cultures of pure colon bacillus from a smear taken from the bands severed during the course of the operation; this, independent of the location of the band, whether cæcal or ileal, or both. Cultures have been obtained from ileal bands as far as eight inches proximal to cæcum, where no bands existed at cæcum or ascending colon. In the second place, a slight error in technique led to a suggestive discovery. During our early cases an occasional post-operative complication was the occurrence of an abscess in the subcutaneous tissues around the site of incision. The pus from these abscesses gave pure culture of colon bacillus. This complication was later eliminated by an improvement in technique whereby the banded area was not allowed to come in contact with the subcutaneous fat.

Treatment. While treatment of bacteriurial conditions does not come within the scope of this paper, yet the results of treatment have some bearing on the relation between the bacteriuria and the disease condition.

In a large percentage of the cases discussed in this series, operative treatment has been done. In every case in which staphylococci or colon bacilli were found in the urine, autogenous vaccines were prepared in our laboratory and administered. Improvement and progress by the patient has in most cases been accompanied by bacteria-free urine, and relapses have been marked by the ability again to secure cultures from the urine. Complete cessation of symptoms has invariably been accomplished by bacteria-free urine.

Summary. We have submitted in this discussion the statistics of our findings: we do not seek to offer any dogmatic interpretation of the meaning of these facts. We make no claim that the bacteria found in the urine in chronic diseases is the infecting cause of the disease. We are content to have contributed some information gained by a systematic and painstaking investigation of bacteriurial conditions, especially with reference to the subject of intestinal stasis.

In conclusion we would draw attention to the following facts elicited in this series of three hundred and fifty cases:

1. The large percentage of positive urine cultures in this series—over 55 per cent.
2. The ability to obtain positive cultures although pyuria was present in only 17 per cent. of the cases (apart from pyelitis).
3. The almost uniform clinical improvement under vaccine treatment.
4. In intestinal stasis—the predominance of colon bacillus in the urine cultures.
5. In intestinal stasis—the obtaining of colon bacillus cultures from smears taken from under dissevered bands.
6. In intestinal stasis—the repeated negative urine culture coincident with the clearing up of symptoms following operation and vaccine therapy.

These findings suggest to us the strong presumption of an intimate association between the bacteriuria and the chronic disease.

Case Reports

A REPORT ON THE SPRING-BALANCE MUSCLE TESTS AS DEvised BY LOVETT

BY LIONEL M. LINDSAY, M.D.

Children's Memorial Hospital, Montreal

THE subject of the after-treatment of poliomyelitis is particularly interesting at the present time on account of the vast amount of material resulting from the recent epidemic and the opportunity this has given for further investigation and advancement in treatment.

If we divide poliomyelitis into the usual three stages we have:

(1) The acute stage, from the onset of the disease to the disappearance of all tenderness; (2) The stage of convalescence, beginning with the cessation of all tenderness and lasting two or more years, during which time there is a natural tendency to improvement of the affected muscles; (3) The stage when all natural improvement has ceased.

After-treatment, then, begins with the stage of convalescence and by judicious treatment the natural tendency to improvement may be aided, while deformity and atrophy are prevented or minimized. Many of the orthopædic operations undertaken in the third stage of the disease are necessitated by the deformity, atrophy or stretching of muscles resulting from improper or neglected treatment during convalescence.

Before beginning treatment it is necessary to make a thorough examination of all the muscles of the body to ascertain which have been affected. Certain groups of muscles which are not uncommonly involved are apt to be overlooked, especially those of the back, the abdomen, and the thumb, unless a systematic inventory is taken.

By the usual *manual* examination it is only possible to say that a muscle is apparently normal in power; partly paralyzed (i.e. weak, or paretic); or totally paralyzed.

About 90 per cent. of all muscles affected by poliomyelitis are only partly paralyzed and are capable of great improvement if

not complete recovery, especially if aided by proper methods of massage, muscle-training, etc. In this large group of paretic muscles there are all degrees of weakness, from those showing but a flicker of contraction to those just short of the normal.

Now Lovett and his co-workers in Boston felt the need of a more precise method than that afforded by mere manual impressions in order to determine the power still present in these muscles. In other words: instead of saying the power in a group of muscles was "poor" or "fair", they wanted to be able to state just what power was present and to record the fact in figures. By this means one obtains a precise record of the initial weakness of the muscles, which not only serves as a guide in commencing treatment but also as a criterion in estimating the improvement found at subsequent examinations.

Theoretically the principle is simple; practically there are many difficulties and pit-falls which greatly alter the readings. The test is based on the patient's power to hold a position against the pull of a spring balance. When the pull becomes too strong the muscles give with a sudden "break" and at this instant the scale is read and the number of pounds or ounces are recorded on a card.

The accuracy of the test depends upon a well-trained team of workers, consisting of an operator and an assistant, who are usually women. The operator is responsible for the correct position of the patient. She steadies the part to be tested and gives the word when the assistant is to pull and the patient is to hold. The pull of the assistant is through a spring balance which is attached to the patient by means of a cuff.

In this way twenty-two different muscle groups are tested on each side of the body: ten in the lower extremity, twelve in the upper. It is to be noted that the method only indicates the power of *groups* of muscles and not of individual muscles. It is really a record of the power of abduction, adduction, flexion, and extension, etc.

Standard positions are assumed for each muscle group, and the value of the test consists in the possibility of duplicating exactly the conditions of the first test at succeeding ones, so that a definite idea of gain or loss in muscle strength can be registered.

In order that one may know whether the power found in a given muscle group is normal or not, it is necessary to know the average normal strength of that group and the variations according to age, and so a table of standards has been worked out on normal,

healthy children of every age for each of the twenty-two muscle groups to be tested.

Children under the age of four or five cannot be tested as a rule, and there is no satisfactory method of testing the muscles of the abdomen, back, and neck, or those of rotation. Thus there are limitations to the method, especially when one adds that very weak muscles do not give a reading.

The time required for a complete examination is about one hour and depends largely upon the skill of the operators and the docility of the patient. The accuracy of the tests depends entirely upon the skill of the operators, but so great is the personal equation that two well-trained teams examining the same patient would be liable to give results showing considerable variations. Consequently it is necessary whenever possible to have the same team examine the same patient on every occasion. It takes at least a month of steady work to train a team of workers to any degree of proficiency.

The apparatus is simple and inexpensive and consists chiefly of three sizes of accurate spring-balance scales, and a few clamps, etc., for steadying the patient. A solid table is also a requisite.

CASE OF VAQUEZ'S DISEASE

BY DR. R. J. ERICKSON

Royal Victoria Hospital, Montreal

THE patient came to the Royal Victoria Hospital under Dr. C. F. Martin's service on August 9th, 1916, complaining of pain in left side under rib margin, constipation, and gastric pain after eating. There was an increasing weakness and an extreme degree of drowsiness, the patient sleeping most of the time. There was an extremely flushed condition of skin which patient says has lasted over thirty years, and a spleen which has been enlarged for at least ten years. His attention was first called to his spleen by his physician and since that time he has noticed that it has slowly increased in size. He gave a history of gastric hæmorrhage

Read before the Montreal Medico-Chirurgical Society, November 3rd, 1916.

once, a small one, and some bleeding from the lower bowel once. Has a history of marked alcoholism for at least ten years and repeated Neisser infection but no luetic infection. An interesting point in the family history is that this appears to be a family condition, the father had a high colour and the patient has four brothers all of whom are very red and flushed, one as dark, if not darker than the patient. This high colour could be seen all over the face, the scalp, the mucous membranes, the retina of the eye, the hands and feet; the hands when hanging down showed marked cyanosis. The spleen was extremely large and came down 15 cm. below the rib margins in the mammary line, extending to the left of the umbilicus. System otherwise negative; heart and lungs normal, blood pressure normal, 120-70, which differentiates this case from one of Geisbock's disease, polycythæmia with splenomegaly and hypertension. The temperature has been somewhat elevated throughout his stay in the hospital, intermittently sometimes as high as 101°. The urine shows a slight trace of albumin and a few casts. Tuberculin test negative, Wassermann negative. Blood picture:

	Aug. 12	Sept. 19	Oct. 31
Polymorph-neutrophiles.....	76%	90%	78%
Polymorph Basophiles.....	0.	4.	9.
Polymorph Eosinophiles.....	1.	3.	1.
Small Mononuclear Lymphocytes.	4.	2.	3.
Large Mononuclear Lymphocytes.	6.	1.	6.
Transitional.....	10.	0.	3.
Unclassified.....	3.		

The course of the disease in the hospital showed a definite improvement, which is rather an unusual thing as these cases do not generally improve, it being a very slow progressive disease and lasting a life time, the patient dying of some intercurrent affection. The patient has been given x-ray treatment on a purely empirical basis and the pain has entirely left him, the spleen is markedly smaller, has decreased at least 3½ cm. in vertical measurement, and moved from the right side of mid line definitely to the left. The cyanosis has become much less, the drowsiness has left him, he is brighter and takes an interest in what is going on.

A study of this case was made in regard to metabolism by Dr. Maude E. Abbott, showing that the basal metabolism was raised 16 per cent. The blood showed as a most distinctive feature a high cholestereal content with increased urea and uric acid content. The nephritic test meal showed a low grade of nephritis with fixation of specific gravity at a high level. Ten days ago

there was a slight exacerbation of pain but that decreased rapidly although there is still some tenderness. The liver occupies apparently its normal limit.

This disease was first formulated as a clinical entity by Vaquez in 1892. Later Osler put it on a firm clinical footing by describing a number of cases in which the most common feature and the diagnostic points of importance were the increased red cell count, the large spleen, and the cyanosis. In making such a diagnosis you have to rule out other types in which the red cell count is increased:

Primary: Erythæmia (polycythæmia vera).

Secondary: Emphysema, cardiac decompensation, congenital pulmonary stenosis, in high altitudes, in chronic poisonings (acetanilid, etc.).

After ruling out all these secondary types and showing that the outstanding points are persistent we are justified in calling this a primary polycythæmia. The etiology is unknown. The suggestion has been made that the red cells in some way have lost their power in carrying oxygen satisfactorily, and consequently the bone marrow is stimulated to increased activity. But it has been proved that there is no increased using up of oxygen in the tissues nor are the oxygen carrying powers of the hæmoglobin diminished. So that as far as we know it is something in which the myelogenous elements of the blood are markedly increased, the cause of which is entirely unexplained. Both white and red cells are increased. The pathological findings have been quite negative as far as an etiological explanation is concerned. Tuberculosis has been found in one or two cases; in one case it was proved that the spleen had taken on the embryonic condition of producing red cells. The bone marrow in all cases shows marked hyperplasia, so markedly in some cases that the bones have been thinned from the increase of marrow.

The distinctive features of diagnosis are: the cyanosis, the persistent high unexplainable red cell count, and the enlarged spleen.

FRACTURE IN UTERO; PREGNANCY IN BICORNUATE
UTERUS; TYPHOID FEVER

BY HARRY H. McNALLY, M.D.

Fredericton, N.B.

A SATISFACTORY reward of the general practitioner is finding a rare case of a given type. The average busy practitioner, feeling that case reporting is the monopoly of the specialist and the hospital man, lets many an interesting case pass without record.

The three following cases justify the request for space for publication.

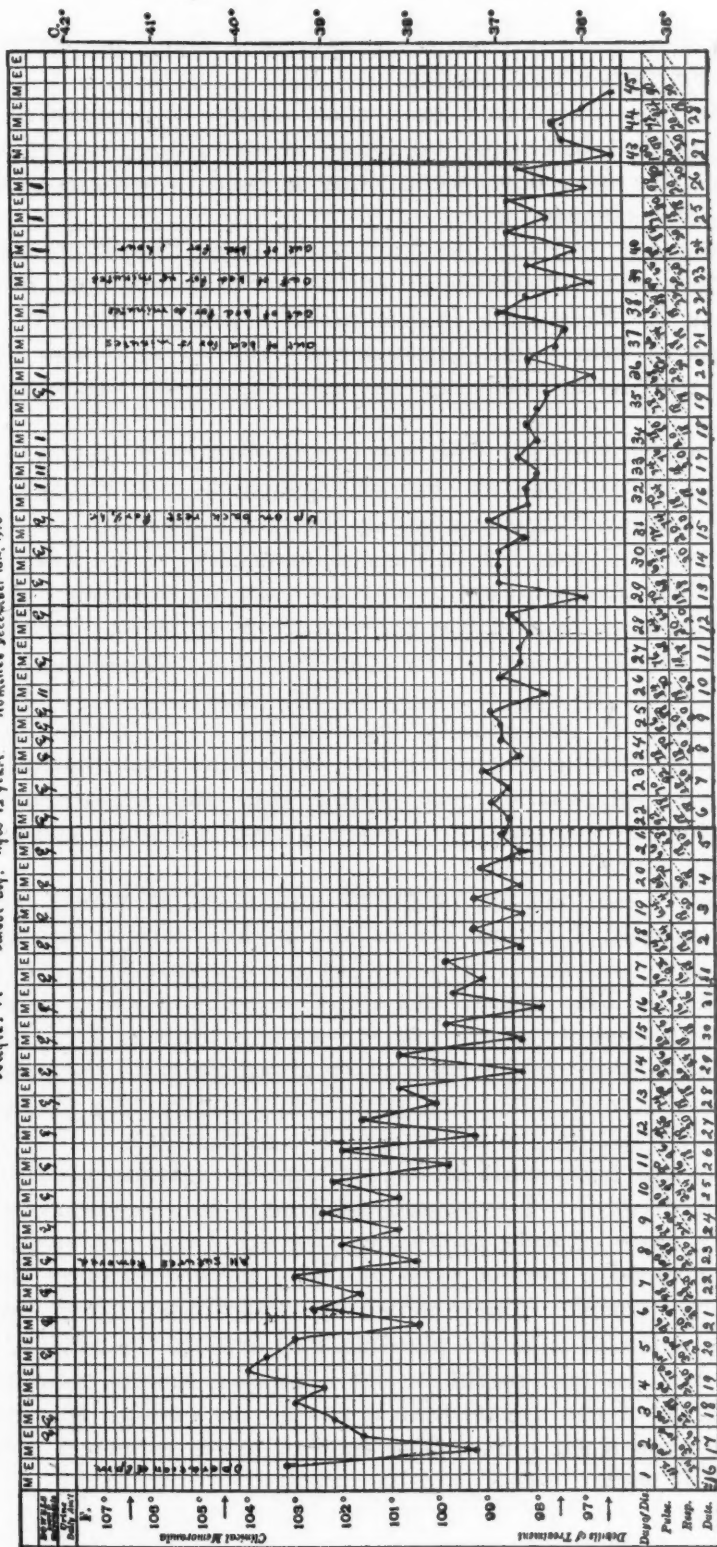
Case 1. *Suspected Fracture in Utero.* Mrs. W—— gave birth in 1916 to a female child. Dr. Wainwright of Fredericton, who attended the case, tells me although a primipara it was a normal head presentation terminating in a normal manner, without manipulation or instrumental assistance. Three months after delivery, I, for the first time, examined the child at my office and noted the following: A perfect female child down to the knees. Right leg bent at an angle of about 159° at the junction of the lower third of the tibia with the central portion, and appears as a badly treated fractured adult tibia does. The foot on this side was in quite extreme talipes equino-varus and a hasty examination would cause one to think the os calcis wanting, apart from this both feet are of perfect shape, but minus the two outer toes on each foot.

The mother and father of the child are mentally and physically normal; the mother tells me her labour was easy. Both parents tell me that when pregnant about six months the mother fell over the doorstep, striking her abdomen.

At Victoria Hospital on December 6th, 1916, while Dr. S. F. A. Wainwright gave the anæsthetic, I cut down on the right tibia at the deformed point, divided the bone with a chain saw, and placed it in a straight position, holding it in the normal shape with a small Lane plate, then I cut the tendo achilles and placed the leg in antiseptic dressings, holding everything in place with plaster of paris dressings, after stitching the wound with iodized catgut.

Received for publication, May 4th, 1917.

Douglas M. School boy. Aged 12 years. Admitted December 10th, 1916



The leg shrunk away from the dressings in about ten days time so I replaced with a new plaster.

The case progressed in a satisfactory way, surgical wound healed by first intention, no stitch abscess, bone united in good position; the foot now, when child is held in upright position, is flat on level surface.

The evidence looks like fracture in utero, in spite of the shortage of toes which furnishes an excuse for non-development theory.

Case 2. *Pregnancy in Bicornuate Uterus.* Mrs. W. T—, a woman of firm build, thirty-seven years of age, who has been married and living with her husband for eleven years and never pregnant till this time.

From the time she first menstruated at thirteen years of age, she had extreme pain at her periods, which were always regular. The most painful time was before the flow appeared.

About two years before the confinement of which I am writing, I was called, and found her in extreme pain in the pelvic region with a small rapid pulse and the appearance of collapse. She had not missed a menstrual period, but the flow was now so slight that I thought, when finding a lump on the right side of the pelvis, of tubal pregnancy and closely watched her for a few hours, to be surprised at finding it clearing up. A further examination led me to diagnose an ovarian cyst. From this time on her menstrual periods were not so painful at every period, although there was an occasional severe one.

Mrs. T— became pregnant and at what would seem the seventh month, I found her in labour-like pains which quieted. She had not up to this time felt what she was sure were movements of the child. The next month she was again in labour-like pains, which continued to worry her for several days and nights. On the day of delivery, which took place about six p.m. the pains were regular and strong, with each pain firmly contracting uterus could be distinctly felt on the left side of the median line. Per vaginam the presenting head could be felt through the external os, which was now well dilated. I ventured to give 1 c.c. pituitary extract, but as in cases of twin pregnancy the drive did not seem direct, and I delivered a perfect male child by forceps through the brim and into the world. The os which was well dilated allowed me easy access to reach at once the placenta and explore the cavity. That which I had thought might be the head of a second child was the double horn of the uterus with a cavity big enough to admit my hand—a good sized one. The mother made a perfect recovery; the child is well.

This history enables us easily to solve my doubts of the past. The painful menstruation was due to retention within the smaller horn. The supposed ovarian cyst was the main body of the uterus lying to the right side of the median line, while the double horn was nearer the correct position of the normal uterus. This is the first double horned uterus which I have recognized in twenty-five years of obstetrical work combined with much abdominal surgery.

Case 3. *Typhoid Fever*. Douglas M—, a fine specimen of a boy, in a big family, came home from school on Tuesday, ill of headache and vomiting. His mother treated him for everything or anything till Saturday morning, when I first saw him at 10 a.m. with a temperature of 102°, with a furred tongue and complaining of pain in right iliac region. There was a certain amount of rigidity in the appendicial region; the case looked typhoidal. He was very ill and his complaint was of distress in his abdomen. The urine at noon showed an indistinct Diazo reaction. At six p.m. his temperature was 103° and pulse 112. At eight p.m. I opened the abdomen while Dr. Wainwright gave the anæsthetic at Victoria Hospital. The bunch of ileo cæcal glands were enlarged; one as big as a walnut I removed after taking out the appendix. The appendix had within it two small enteroliths and a distinct ulcer.

The following morning his temperature had dropped to 99.1° and he was so comfortable that I felt obliged to retract my diagnosis of typhoid; however the enclosed chart will show the distinct typhoidal course which resulted in perfect recovery.

The abdominal wound healed without the slightest redness about the stitches, which were removed on the eighth day.

I regret that I did not take a blood culture or do a Widal at time of operation, after that it was easily neglected and soon unnecessary, for typhoid spots appeared and the diagnosis of typhoid was assured.

Literature has taught me to watch the appendix, and frequently I have a case which plainly shows appendicial symptoms which pass without surgical interference.

Editorial

THE ORGANIZATION OF PROVINCIAL ASSOCIATIONS

ATTENTION has already been directed in the June number of our JOURNAL to the strong plea put forward by our President Elect in his address before the Manitoba Medical Association for a more perfect organization of their Provincial Association to enable the province to give more effectual support to the Dominion Association. In our present issue appears a letter from Dr. Wishart, Chairman of the Committee of Revision of the By-laws of the Ontario Medical Association, in which he emphasizes the importance of arousing the profession to take greater interest in matters which deeply concern not only the public but also themselves as individual practioners. Changes are taking place in the profession itself, and in its relations to the public, which not only demand from every individual practitioner careful thought, but also demand full discussion by the profession as a body. Important public measures affecting the profession are now being enacted in which the profession should have much to say. To have its due influence the profession must speak as a body, and this can only be done after the details of each enactment have been carefully considered and discussed in a general meeting. In Canada we can with much advantage follow the scheme of organization of the American Medical Association; and this the profession in Ontario are proposing to do. We have similar objects in view to those of our American confrères which are stated as follows: "The Association shall endeavour to unite in one compact organization the medical profession for

the purpose of fostering the growth and the diffusion of medical knowledge, of promoting friendly intercourse among physicians themselves, of safeguarding the material interests of the medical profession, of elevating the standard of medical education, of securing the enactment and the enforcement of just medical laws, of enlightening and directing public opinion in regard to the broad problems of hygiene, and of representing to the world the practical accomplishments of scientific medicine." To attain similar objects the profession in Ontario are proposing to form local societies throughout the province, only members of which societies shall be eligible for membership in the Provincial and also in the Dominion Associations. We cordially commend the scheme to all members of the profession in every province, and regard the carrying out of such a scheme as of the greatest importance to the profession in Canada.

DOCTOR COTTON'S PAPER ON THE CAUSATION OF ETHER ANÆSTHESIA

IT has been a matter of common acceptance among anæsthetists that the various brands of anæsthetic ethers on the market produce different clinical effects. The same brand of ether varies in its action from time to time according to samples. Nevertheless, we have always looked upon ether as a definite entity, and have considered clinical differences in action due to impurities, such as alcohol and water, left in during manufacture, or to oxidation products due to deterioration. That is to say, we have always thought that the ideal ether for anæsthesia should be chemically pure, and all the efforts of the manufacturers have been extended toward the production of a pure chemical in a container which prevents any oxidation.

Doctor Cotton's work in separating commercial anæsthetic ethers into a purely analgesic and a purely narcotic

part changes the point of view entirely. While he states, with commendable modesty, that he has done only some preliminary work on the subject, the clinical results which he produces are a remarkable improvement over those of ether anæsthesia. His work has created the most widespread interest, and surgeons and anæsthetists everywhere are eagerly awaiting the production on the market of an anæsthetic agent such as he recommends.

A VOLUMINOUS report was presented to Parliament on July 17th by the Special Committee on Returned Soldiers. It contained the following recommendations concerning the care and treatment of returned soldiers:

That both Federal and Provincial authorities take up without delay effective measures to prevent the spread of tuberculosis.

That those soldiers who are hopelessly insane should be cared for at the expense of the Federal Government in provincial institutions under the same conditions as fellow-citizens similarly afflicted;

That returned soldiers who are suffering from venereal diseases should be quarantined at the port of arrival in Canada until cured;

That orthopædic institutions be provided at centres throughout Canada in addition to the one located in Toronto;

That sufficient number of returned men be induced to learn and follow the occupation of manufacturers of artificial limbs and that their services be utilized to supply limbs to soldiers free of cost and renewals and repairs at the cost of the State during the life-time of the soldiers;

That returned men who have been undergoing convalescent treatment and have partially completed courses of vocational training be allowed to continue such courses for a period of two months after their discharge as medically fit if, in the opinion of the vocational training officer of the

district, it is in the interest of the State and of themselves that they should do so.

The majority of the committee, including the chairman, Sir Herbert Ames, were of opinion that a special department of the government should be created to direct matters connected with returned members of the Expeditionary Force; other members, however, thought that such questions should be under the control of the Militia Department.

It is suggested in the report that the Dominion and Provincial authorities should coöperate to secure employment for returned soldiers, and that time spent on active service in the case of a civil servant should be accounted absence with leave, his grade and standing in the public service to be determined accordingly.

A CONFERENCE of medical officers in charge of sanatoria in which returned soldiers are undergoing treatment took place at Ottawa in June. The meeting was presided over by Dr. F. J. Shepherd, of Montreal, and among those present were Sir James Loughheed, president of the Military Hospitals Commission, and Lieutenant-Colonel Thompson, M.P., chief medical officer of the Commission.

The conference was of particular interest in that a number of points came up for consideration concerning the methods of administration and treatment in vogue in the different institutions. A series of questions upon these subjects had previously been submitted to the officers in charge of the various sanatoria by Lieutenant-Colonel Thompson and these, with the replies, formed the basis of discussion. It was adopted some time ago as the policy of the Hospitals Commission that treatment should be given in the sanatoria under its direction to all tuberculous soldiers, whether they had been overseas or not and a large percentage of the cases treated have not been across the water. It was stated that about 1,200 patients had already passed through the

institutions and that about 800 were at the time undergoing treatment.

An advisory committee was appointed to assist the Military Hospitals Commission in its work in connexion with tuberculous soldiers. The members of this committee are Captain J. D. Byers, of Ste. Agathe, Dr. C. D. Parfitt, of Calydon Sanitarium, Gravenhurst, and Dr. J. H. Elliott, of Toronto.

A good deal of attention was given to a discussion of some of the difficulties encountered in enforcing discipline. It was decided that in cases where a soldier had refused treatment and had signed a form releasing the Government of responsibility towards him but later had returned and requested treatment, he should be allowed to reattest and should receive the usual pay and allowances. It was considered inadvisable to send men who had refused treatment and been granted total disability pensions to civilian sanatoria at the expense of the Commission—a practise that had been followed in one or two cases—since the total disability pension amounted to more than the pay, and were this known to the men many of them would probably take advantage of it. It has been found that, as a rule, difficulties arise when officers and men are treated together and it was recommended, therefore, that a special sanitarium for officers should be provided. It was also recommended that a central institution should be established for chronic cases of tuberculosis, as they filled up the sanatoria and occupied space that should be available for curable patients. In the case of incorrigibles, it was thought that the best way to deal with them was to send them to a detention sanitarium where discipline could be enforced more strictly.

Some discussion arose as to the number of patients that could be treated by one medical officer. It was agreed that no doctor should be expected to attend to more than fifty patients, and that every additional forty patients, or less, necessitated the services of another medical officer.

This suggestion was made, however, on the assumption that the physician would be responsible for the medical treatment only and that efficient persons would be appointed to look after other departments.

It has been customary for the medical boards at Quebec to recommend tuberculous soldiers for six months' sanitarium treatment. This has led the men to expect to be cured at the end of the time stated and in many cases it has been difficult to control them and to make them understand that they are not sufficiently cured to return to their homes. It would be better, therefore, if no definite time were mentioned. Another point which led to discussion was whether or not a tuberculous soldier should be permitted to go home for a short furlough before entering a sanitarium. The general opinion was that he should be allowed to visit his people as, in the majority of cases, treatment had already been given in England and the disease was probably quiescent and the danger of spreading infection not great. Moreover, if the permission was not given, the man became restive and discontented and would probably refuse to go to the sanitarium at all. As to the question of holiday leave, it was deemed advisable to grant leave, but not at festive seasons. At such times the patients were tempted to eat and drink too much, and at one institution where leave had been granted at Christmas time every one of the patients suffered a relapse. If the reasons for not granting leave at holiday time were carefully explained to the men, Captain Byers thought there would be no difficulty. Last year he allowed his patients to go home between December 5th and 20th instead of at Christmas. A resolution was moved by Captain Byers and adopted unanimously by the conference that it be made a penal offence for any one to supply a tuberculous soldier with intoxicating drink.

The value of occupation was emphasized particularly. Captain Byers said that since vocational training had been instituted at Ste. Agathe, the men had been happier and more

amenable to discipline and had made more rapid improvement. They ceased to brood over their troubles when they had something to do, and even those who could not sit up were able to do fancy work. They got up little exhibitions of their work when friends came to see them and became so interested that they forgot everything else.

Other recommendations made at the Conference were, that *x-ray* equipment be installed in sanatoria whenever possible, that the number of beds in one institution be limited to 150 or 200, and that a specialist in diseases of the lungs be appointed to all medical boards.

IN an address at the annual convention of Superintendents of the Poor of the State of New York, Mr. George A. Hastings, the executive secretary of the Committee on Mental Hygiene of the State Charities Aid Association, referred to the importance of providing in every community suitable accommodation for the care of the insane while under observation and until they can be taken to hospital. On more than one occasion attention has been called in this Journal to the need for such accommodation in the cities of Canada, but such cases are still sent to the jails because, with one or two exceptions, there is nowhere else to send them. The subject was discussed at the annual meeting of the Saskatchewan Medical Association in July, when a sub-committee was appointed to take up the matter with the Attorney General and to ascertain whether steps could not be taken to provide proper accommodation for the insane for a few days before they were sent to an asylum.

A CONFERENCE of representatives of a number of provincial organizations was called at Toronto on August 7th, for the purpose of discussing means of checking the spread of venereal disease and a committee was appointed to consider the problem. Among the organizations represented were

the National Council of the Young Men's Christian Association, the National Council of Women, the Local Council of Women, the Women's Liberal and Conservative Associations, the Daughters of the Empire, and the Toronto Board of Trade. It was stated by Captain Gordon Bates, C.A.M.C., of the Base Hospital, that approximately 1,500 patients suffering from venereal disease were admitted to that hospital every year, and that during the first three months of 1917 12 per cent. of all the patients in the public wards of the Toronto General Hospital, upon examination, gave a positive Wassermann reaction. Moreover, 25 per cent. of the male admissions to the Toronto Hospital for the Insane were cases of general paresis. It was agreed that the time had come when steps should be taken to inform the public of the danger of infection, and as a restrictive measure it was suggested that women patrols should be formed. It was announced at the meeting that the services of lecturers upon matters connected with the subject under discussion would be available upon demand by any organization that wished to take part in the campaign of education.

ADDRESSING a number of physicians at Hamilton, on July 27th last, Colonel Ryerson, A.D.M.S., Toronto, explained that, under the selective draft scheme, doctors of military age would be divided into three classes according to their physical fitness—Class A, who would go overseas; Class B, who would be posted for duty probably in England or at one of the Canadian camps; and Class C, who would serve on the staffs of hospitals in this country. Forty-eight years was the extreme age limit for home service, and forty-five years for service overseas. Physicians over age might be attached to Canadian military hospitals as consultants. Dr. Wickens, a member of the Ontario College of Physicians and Surgeons, said that the committee appointed to make a census of the medical men in the province, required the names of all medical men whether of military age or not.

It is the intention to establish at Halifax an institution for the education and training of blind soldiers. The work will be organized, on the lines of that done at the St. Dunstan's Home in London, by Sir Frederick Fraser who has been so successful in building up the Halifax School for the Blind.

THE summer hotel at Qualicum, the popular resort on Vancouver Island, has been converted into a convalescent home for returned soldiers. The patients—over a hundred in number—are encouraged to go in for all kinds of sport, including boating, tennis, cricket, bowling, and golf, and are given vocational training of every description. A machine shop, garage, and carpenter's shop have been supplied for the training of those who wish to go in for industrial work, and a recreation building is to be established where a motion picture machine will be installed.

As a means of preventing the spread of tuberculosis in cattle, and its consequent distribution through the milk supply, an order-in-council has been passed by the Government, which requires that all dairies in which milk or cream are produced for sale shall be licensed and that no license shall be issued unless the dairy conform to a required standard; that is, unless the stable shall have an ample amount of air space, and at least two square feet of glass for each cow, and shall be well ventilated, drained, and kept clean and sanitary. Two years from the date of the first test of the cattle of a dairy, the sale within the city or town of unpasteurized milk or cream from that dairy shall be prohibited, unless the veterinary inspector can certify that the herd contains no reactor, and in his opinion is free of tuberculosis. The inspectors are to use the tuberculin test and examine the cows.

Compensation will be made to owners of cows slaughtered, at the rate of one-half of the appraised value of those destroyed

for open tuberculosis, and two-thirds if destroyed as a reactor at the request of the owner, and valuation is to be made by the veterinary inspector. Milk or cream from a herd containing reactors shall not be sold unless it has been pasteurized.

Whenever in the opinion of the veterinary director-general the work of eliminating tuberculosis from the herd supplying a municipality has reached a satisfactory point, the municipality will be expected to maintain the standard reached.

AN interesting account of the evolution of the municipal hospital in the province of Saskatchewan is published on another page of this issue. The writer, Mr. D. G. Tuckwell, has contributed largely to the success of the movement by his own unfailing interest and his efforts to arouse public enthusiasm in a matter which is of the greatest importance to the public generally. A few months ago a Municipal Hospital Act was also passed in the province of Alberta. It provides that the province shall be divided into hospital districts and that hospital boards shall be appointed which, under the direction of the Minister of Municipalities, shall provide for the location and purchase of a suitable hospital site; the purchase, acquisition, or erection of buildings, furnishings and equipment; and the engagement of duly qualified medical practitioners and registered nurses. It is the duty of these boards also to arrange a schedule of fees proposed to be charged and to decide upon the method of their collection. The Act does not compel a municipality to provide free hospital accommodation but every facility and inducement is offered for the establishment of such hospitals and at the same time the responsibility is placed upon the provincial government of seeing that money collected for this purpose is expended to the best advantage. The taxation is not to exceed two mills in the dollar or two cents an acre, but no tax is to be less than ten cents.

Canadian Medical Association

THE MONTREAL MEETING OF THE ASSOCIATION

THE following resolutions which were passed at the last meeting of the Association will no doubt be of interest to the members, particularly those who did not attend the meeting.

It would be difficult to single out any one of these as having greater importance than the others, but undoubtedly, the resolution dealing with the Amalgamation of the Canadian Public Health Association with the Section of Public Health of our Association is of far reaching importance.

Perhaps never in the history of the country has there been greater need for coöperation and collaboration by the various public health organizations.

Another resolution which appears to deserve more than passing notice is the one which refers to the Teaching of Hygiene in all Universities, not only in the Medical Faculty, but in other Faculties as well.

1. Moved by Dr. P. H. Bryce, seconded by Dr. F. Montizambert, that,

In view of the increasing health problems incident to ever growing complexities resulting from the numbers, distribution, and occupations of mankind:

In view of the demands made for the intimate oversight of the life of the individual, the community and the nation, in the interests of health, happiness and efficiency:

And in view of the daily increasing utilization of the discoveries in the exact sciences by medicine, not only for the cure of human ills, but also for the prevention of evils due to heredity and to environment as in the control of foods, housing, hours of labour and industrial conditions,

Be it therefore resolved,

That the Canadian Medical Association recognizing these facts and constantly changing influences which are affecting both the science and art of medicine, as illustrated in the address of the

acting President of the Association, should seek to draw closer to it for the promotion of the highest interests of both the public and the profession, other organizations occupying themselves with similar problems, and to this end it is urged by the Public Health Section that the Canadian Public Health Association be invited to consider the propriety of uniting its efforts to those of the aforesaid Section, since

(a) This Section deals with matters of the same character as those brought before the Canadian Public Health Association,

(b) The provinces have their own public health associations,

(c) It is in the interest of public health to unite all scientific workers in matters of public health; and that the Canadian Medical Association as representing seven thousand members of the profession in Canada, is the potent influence in assisting to obtain through legislation reforms through the several legislatures of Canada relating to public health, and to the highest interests of the people of Canada.

2. Moved by Dr. P. H. Bryce, seconded by Dr. Charles J. Hastings,

That this meeting of the Public Health Section of the Canadian Medical Association strongly recommends the passing of Planning and Developing Acts in all the provinces which have not Acts in force, and the better administration of existing Acts, in view of the needs of proper development schemes being prepared to secure proper sanitary conditions, amenities and conveniences in connexion with the development of rural and urban land, and

That such legislation and the administrative machinery necessary to put it into effect, is especially needed to deal with the successful settlement of returned soldiers on the land, or in properly planned industrial towns, a matter which we regard as one of national urgency and importance,

That the Executive be requested to forward this resolution to the Premiers and Provincial Secretaries of the Provinces of Canada.

3. Moved by Dr. Hastings, seconded by Dr. Boucher,

Whereas the question of the Teaching of Hygiene has been considered of so much importance that the Canadian Medical Association has put aside a whole session of its Section of Hygiene for its study,

Whereas it is proved that such teaching is absolutely necessary to ensure the observation of health laws and by-laws, which are framed for the protection of the health and the life of the citizen,

Whereas to obtain such a desirable result an important place should be given to such teaching,

It is resolved that the Canadian Medical Association strongly recommends:

1st. The organization of a course in Hygiene in all universities, not only in the Medical Faculty, but also for the students of all the other faculties, theology, law, science, etc.

2nd. The organization of a practical course of Hygiene, given by specialists in all the normal schools,

3rd. The adoption of a text-book on Hygiene, to be used throughout the schools,

4th. That the present resolution be addressed to the deans of the different Faculties of all Universities throughout Canada, as well as to the School authorities of all the Provinces of Canada.

4. Moved by Dr. J. W. McIntosh, Vancouver, seconded by Dr. Stewart, Montreal,

That in view of the public interest involved, and the dangers to members of the community from the prevalence of venereal diseases, and the need for the broadest methods being adopted in Canada for dealing efficiently with such diseases, resolved,

That the Public Health Section of the Canadian Medical Association urges that the Federal Government pass such legislation for the establishment of a Central Bureau with powers to make regulations, and provide such medical facilities for insuring the best results, and that such Bureau be supplied with such a grant as will meet the carrying out of their regulations.

5. Moved by Dr. Black, of Windsor, N.S., seconded by Dr. Pagé, of Quebec,

Believing that sickness, suffering and premature death may be largely prevented by the properly organized application of modern science and present day knowledge, Therefore be it resolved that the Canadian Medical Association here in Convention assembled, fully apprehending the pressing necessity of a Federal Bureau of Health and Physical Education, respectfully urge upon the Federal Government the formation of such a bureau at the earliest possible date.

At the request of the Montreal Society of Physical Education, the following was incorporated in the foregoing resolution: Resolved that in the opinion of this Society the time has now come for the establishment of a Department of Hygiene and Physical Education under the Federal Government and that the efforts of Dr. Michael Steele, M.P. for Perth, South Riding, and Dr. Eugene Paguet, M.P. for L'Islet, deserve the fullest consideration and attention.

Correspondence

To the Editor,

THE CANADIAN MEDICAL ASSOCIATION JOURNAL.

Sir,—

IN the June number of the JOURNAL I perused with interest your editorial upon the activities of a Provincial Association, founded upon the Presidential Address of the Manitoba Medical Association, and with the ideas therein expressed I readily agree.

It might be interesting to your readers if a further article were published outlining what is being done in the province of Ontario, and I propose to try, as briefly as possible, to outline the changes that are taking place in the organization of the Ontario Medical Association, the reasons that have led up to these and the aims that are sought for.

For a number of years those most interested in this Provincial Association have recognized that the Association was failing to occupy its proper place with regard to the general interests of the profession throughout the province. This was evidenced by the irregular attendance at the meetings and the fact that not more than a fourth of the members of the profession, within the bounds of the province of Ontario, were enrolled as members of the Provincial Association, even when, as was the case, attendance at one meeting and the payment of the fee of \$2.00 for that meeting only, entitled the member to permanent enrolment. A committee, therefore, worked at intervals upon the problem and endeavoured to get in touch with the local city committees and territorial associations wherever such existed, and where the members of the profession

were not banded together in local societies, the members of the committee would go and address gatherings of the profession and endeavour to bring them to realize the necessity for organization. Finally, a committee was instructed to formulate the changes that would be required in the existing constitution and by-laws of the Provincial Association in order to create a chain between the Dominion Association on the one hand, and the practitioners on the other, links in which would be the Provincial Association and the local society. This committee, after much work, sent down to some forty local societies throughout the province the scheme of reorganization, and this, in its final and revised form, will come before a special meeting of the Association to be held this fall. The scheme, briefly, is that local societies shall be established throughout the province, and the only road by which any practitioner may gain admission to the Provincial Association, and through it to the Dominion Association, shall be by membership in his own local society. In this way a practitioner is responsible for his conduct to the men who are practising around him, and they are the ones who pass upon his qualifications for membership—first, in the local society; second, in the Provincial, and third, in the Dominion. The Provincial Association shall be managed by a committee of general purposes, composed of delegates from the various local societies, upon a fixed basis of representation, namely: The president and one delegate from every society of fifty members or under, and one additional delegate for any portion of fifty in addition to the original fifty.

Recognizing that the formation of local societies will require an active campaign, and the duties of the secretarial office will be greatly increased, the Association demands a fee of \$2.00 per year from every member of the local societies who seeks enrolment in the Provincial, and, at the same time, relinquishes its claim upon the Dominion Association treasury for any rebate upon the Provincial membership in the Dominion Association.

There are, of course, a number of other changes in the original constitution of the Provincial Association, but they are necessary to the working out of the scheme and, beyond what is stated above, are of no vital importance outside of the province.

The necessity for a resolute endeavour to arouse the profession throughout the province to the requirements of the situation, has been pressed upon the thinking members of the profession through various questions of public import, which have arisen of late, affecting the profession. There is the Workmen's Compensa-

tion Act, an act vitally affecting a great proportion of the members of the profession in that it arranged a form of national insurance against accident and compelled the formation of a fund into which workmen and employers alike paid. This Act was drawn up at first without much consultation with the profession and the result has been that a large committee of medical men have been engaged with the Government in the preparing of amendments to the original Act, which are being brought into operation this summer and which aim to give a fair remuneration to the medical men who are called in to attend workmen when they meet with accidents. The appointment of a Medical Commission by the Ontario Government to enquire into medical education, the rights (?) of chiropractors, osteopaths, Christian scientists, mano-therapists, etc., etc., to practise under the Medical Act, etc., etc., at once made a demand upon the profession to state the reasons for its existence, its ideas with regard to educational qualifications, etc., and it was found that there was no organization qualified to do more than to speak for a small proportion of the profession.

There are numerous other public questions upon which the profession has a right to be heard, and its united opinion pressed upon the public and the Government, such questions as the Adulteration of Foods Act, the Health Legislation, Patent Medicines, etc.

The scheme of reorganization of the Ontario Medical Association resembles that of the American Medical Association more than that of the British Medical Association but it was felt that the former was better calculated to meet the needs of the situation—modified, of course, to suit our differing conditions.

Yours sincerely,

D. J. GIBB WISHART,

Chairman, Committee of Revision.

Book Reviews

EMERGENCY SURGERY. By JOHN W. SLUSS, A.M., M.D., F.A.C.S., associate professor of surgery, Indiana University School of Medicine. Fourth edition, revised and enlarged. 827 pages with 685 illustrations, some of which are printed in colours. Publishers: P. Blackiston's Son & Co., 1012 Walnut Street, Philadelphia. Price, \$4.00 net.

THE present volume by Dr. Sluss is the fourth edition within a very short time, a fact which sufficiently attests its popularity. The book obviously fills a want which has been particularly felt by the general practitioner. The only book that we know of of late years devoted to this particular field is that of Lejars, of Paris, which was translated into English a few years ago and had a large sale. Lejars book, however, is too lengthy and cumbersome for the purpose of the general practitioner who finds himself in an emergency. In this respect Sluss' book is an excellent compendium. It is full enough, and yet concise enough. The illustrations are numerous; there is one for almost every page, and on the whole they are excellent, although quite a few of them, adapted from older text-books, are, according to our present day standard, a trifle crude. The subject matter is presented in good concise English, though without pretence to style. One is inclined to take issue with certain statements; for instance, in speaking of the treatment of appendicitis the author advises, where pus is expected, an incision which cuts through the internal oblique across its fibres. Nowadays there are practically no cases of appendicitis that need the cutting of muscle with consequent tendency to hernia.

There is a great deal of useful information given in a concise way, and of value, not only to the general practitioner, but to the surgeon, particularly concerning the rarer emergencies, such as, wounds of the heart, œsophogotomy, etc. As usual in such books, there is given a great deal more than properly comes under the head of "emergency surgery". For instance, the treatment of cold abscess (page 394) can hardly be called an emergency; the same is perhaps true of furuncle of the face. However, this is perhaps hypercritical. There are a couple of good chapters on

wounds of the war, which, however, are already partly out of date; for example (when one remembers the long and precise directions that Carrel recently put forth), the instructions for making Dakin's solution are dreadfully abbreviated.

One might go through the book and pick out a great many things to approve, and a few things to condemn, but space forbids. On the whole the book is cordially to be recommended.

THE PRACTICAL MEDICINE SERIES. Vol. VI. **GENERAL MEDICINE**, edited by FRANK BILLINGS, and others. Series 1916. Chicago, The Year Book Publishers, 327 LaSalle Street. Price, \$1.50.

In the present volume the subjects of infectious diseases, diseases of the mouth and œsophagus, of the stomach, of the intestines, of the liver and gall bladder, and of the pancreas, are reviewed. The volume contains 340 pages and has an excellent index. It maintains the high reputation long since acquired by this series of year books. The reviews are well done and the newer things are well selected. It is to be recommended.

Books Received

THE following books have been received and the courtesy of the publishers in sending them is duly acknowledged. Reviews will be made from time to time of books selected from those which have been received.

THE PRACTICAL MEDICINE SERIES; Comprising ten volumes on the Year's Progress in Medicine and Surgery. Under the editorial charge of CHARLES L. MIX, A.M., M.D., professor of physical diagnosis in the Northwestern University Medical School. Vol. I, **GENERAL MEDICINE**. Edited by FRANK BILLINGS, M.S., M.D., head of the Medical Department, and Dean of the Faculty of Rush Medical College, Chicago. Price, \$1.50. Vol. II, **GENERAL SURGERY**. Edited by ALBERE J. OCHSNER, M.D., F.R.M.S., LL.D., F.A.C.S., surgeon-in-chief Augustana and St. Mary of Nazareth Hospitals. Series, 1917. Chicago, The Year Book Publishers, 608 S. Dearborn Street. Price, \$2.00.

IMPOTENCY, STERILITY, AND ARTIFICIAL IMPREGNATION. By FRANK P. DAVIS, PH.B., M.D., Fellow American Medical Association. Publishers: C. V. Mosby Company, St. Louis, 1917.

FOOD POISONING. By EDWIN OAKES JORDAN, chairman of the Department of Hygiene and Bacteriology, the University of Chicago. Price, \$1.00 net. The University of Chicago Press, Chicago, 1917.

ASTHMA: PRESENTING AN EXPOSITION OF THE NONPASSIVE EXPIRATION THEORY. By O. H. BROWN, A.B., M.D., PH.D., formerly assistant professor of medicine, St. Louis University. 322 pages with 36 engravings. Price \$4.00. Publishers: C. V. Mosby Company, St. Louis, 1917.

EXPERIMENTAL PHARMACOLOGY. By DENNIS E. JACKSON, PH.D., M.D., associate professor of pharmacology, Washington University Medical School, St. Louis. 536 pages with 390 original illustrations including 24 full page colour plates. Price \$4.00. Publishers: C. V. Mosby Company, St. Louis, 1917.

Obituary

DR. THOMAS DYSON WALKER

DR. THOMAS DYSON WALKER, one of the leading physicians of St. John, N.B., died in the Massachusetts General Hospital on July 22nd. Dr. Walker, owing to failing health, had been compelled to spend the last few winters in a warmer and more genial climate, but when the weather moderated he always returned to St. John where he did active service on the surgical staff of the St. John General Hospital. He held office on several occasions in the New Brunswick Medical Association and was a past president of the St. John Canadian Club. When the 8th Field Ambulance was first organized in St. John, many years ago, Dr. Walker took an active part in its formation, and became a member of its staff, continuing his connexion with the corps until he attained the rank

of lieutenant-colonel. Ill health prevented him from going overseas, but last year he served as commandant of the hospital at the Aldershot training camp. He is survived by his parents, three sisters and three brothers. One of his brothers is now in charge of No. 9 Overseas Heavy Siege Battery, another, Dr. William Dacre Walker, is practising in Andover, Mass., and a third is connected with the Canadian Bank of Commerce. Dr. Thomas Walker, his father, has held a foremost position among the profession of St. John for the past forty years.

A hospital colleague sends the following appreciation:

Dr. Walker, after an Arts course at the University of New Brunswick and a medical course in Edinburgh, entered upon the practice of his profession in his native city in 1891. In that year he was elected to the visiting staff of the General Public Hospital and served the institution continuously until the time of his death. Very early in his career he showed a marked leaning toward the practice of surgery and as time passed came more and more to be recognized as an authority in that department, and on the creation of the American College of Surgeons was honoured with a charter fellowship. An active member of our medical societies, Dr. Walker was a profound student and never neglected an opportunity, by travel and observation, of widening and deepening his experience. He was greatly beloved by all who knew him, and rightly so; for he brought to the discharge of his duties not only a well-trained mind but a tender sympathetic heart. By the death of Thomas Dyson Walker the profession of medicine in St. John has lost one of its most brilliant members and the community a public-spirited and useful citizen.

CAPTAIN JAMES HENDERSON, R.A.M.C.

CAPTAIN HENDERSON died of tuberculosis, at his parents' residence, in Toronto, on Tuesday, July 17th. After graduating from the University of Toronto, where he obtained his medical degree in 1900, Captain Henderson saw service in the South African war and upon the declaration of peace returned to Canada and went into practice at Warren in the province of Ontario. From Warren he went to Sudbury and while there he made many long journeys to lumber camps and often underwent great hardships, on one occasion being found unconscious and badly frozen. Dr. Henderson afterwards removed to Regina where he was in practice

when war was declared. He joined a medical corps and went to Valcartier but the state of his health made it necessary for him to return to Regina. Six months later, however, accompanied by his wife, he sailed to England, joined the Royal Army Medical Corps, and became a member of the Expeditionary Force that was sent to the relief of General Townsend at Kut-el-Amara. Unfortunately his health broke down again and he was admitted to St. George's Hospital, at Bombay. From there he was transferred to England and later returned to Canada. Captain Henderson was a keen sportsman and had made many friends in the West. He was possessed of an undaunted spirit and in spite of impaired health was eager to serve his country.

DR. ROBERT THOMAS ADAM, of Lindsay, Ontario, died at Gravenhurst Sanitarium, on July 28th, after a long illness, at the early age of thirty-three years. He was a graduate of the Lindsay Collegiate Institute and the University of Toronto where he obtained his medical degree in 1907. Dr. Adam served as medical officer on one of the Canadian Pacific Railway liners sailing from Vancouver to the Orient for some time and afterwards practised at Millbrook, Ontario.

DR. JOHN ALEXANDER MCGUIRE, physician at the Stony Mountain Penitentiary, died at the Winnipeg General Hospital, on July 31st, in the fifty-ninth year of his age. Dr. McGuire was born in New Brunswick and, in 1882, went to Manitoba to teach in the Stony Mountain School. After teaching for some years, he entered the medical school of the University of Manitoba where he graduated in 1895. He was appointed surgeon of the penitentiary in 1911.

DR. BEAN, of Consecon, Ontario, lost his life in an attempt to rescue his wife and child from a burning house. He had recently opened a practice in Consecon and on the morning of August 8th had apparently been awakened by the fire and had escaped from the house. It is surmised that he returned to the burning building to rescue his wife and child. Mrs. Bean is not expected to recover but it is hoped that the child will get well. Dr. Bean was only thirty years of age.

DR. E. L. FULLER, of Amherst, Nova Scotia, died July 1st, after a long illness. He was born of Canadian parentage in North-

ampton, Massachusetts, and had practised in Amherst for about thirty-five years.

DR. A. HENRI LAPLUME, of Montreal, died July 21st, in the twenty-ninth year of his age. Dr. Laplume was educated at the Montreal College and graduated from Laval University in 1913. He was house surgeon at the Hôtel Dieu and the St. Justine Hospital.

DR. ARCHIBALD MCTAVISH died at the Amasa Wood Hospital, St. Thomas, Ontario, on August 1st, in the eighty-second year of his age. Dr. McTavish was born in North Yarmouth and practised for a number of years at Staffa. He leaves three sons, one of whom is the editor of the *Canadian Magazine*.

DR. J. O. ORR, of Toronto, died August 22nd. He had been in failing health for some time and had recently been granted a year's leave of absence by the directors of the Canadian National Exhibition, of which he had been manager for the past thirteen years. Joseph Orlando Orr was born at Toronto, in 1861. He graduated in medicine from the University of Toronto in 1884 and completed his medical studies at King's College, London. Dr. Orr was the founder of the Toronto Technical School, a member of the city council from 1890 to 1894, and a trustee of the General Hospital.

News

MARITIME PROVINCES

DR. A. E. MACAULEY, superintendent of the General Hospital at St. John, New Brunswick, has resigned.

THE following candidates successfully passed the examinations of the Council of Physicians and Surgeons of New Brunswick in June last: Drs. H. S. Clarke, H. Hedden, J. G. Langis, A. T. Leatherbarrow, E. W. Lunner, and J. R. Nugent.

THE sum of one thousand dollars has been advanced by the municipal council of Westmoreland, New Brunswick, to the Moncton hospital, in view of the increased cost of maintenance.

DR. A. B. ATHERTON, formerly of Fredericton, New Brunswick, has retired from practice and is now living at San Diego, California.

QUEBEC

CAPTAIN A. H. Hall, who was wounded in France some months ago, has returned to Canada and taken up practice again in Quebec.

ONTARIO

A FINE of \$100 was imposed, on August 13th, upon a Toronto doctor for violation of the Temperance Act. The defendant pleaded guilty to two charges of issuing prescriptions for intoxicants which were not required for medicinal purposes.

It is proposed to erect a hospital at Orillia as a memorial to the soldiers from that town who have fallen in battle. It is estimated that the proposed hospital will cost about \$75,000 and it is probable that a by-law to raise one third of this amount will be submitted to the ratepayers.

DR. HASTINGS, the medical officer of health, has been instructed by the Toronto Board of Health to draw up regulations for the control of venereal diseases in that city.

DR. M. B. WHITE has been appointed director of medical services under the Toronto Board of Health. Dr. White will thus have charge of the medical inspection of schools, which was recently transferred from the Department of Education to the Board of Health.

MANITOBA

THE Brandon Hospital for the Insane is to be enlarged. It is probable that patients at present in the asylum who are not actually insane will be removed to Selkirk, while insane patients now at Selkirk will be taken to Brandon.

SASKATCHEWAN

A MUNICIPAL hospital is in course of construction at Shaunavon. Hospitals are also to be built at Lanigan and Swift Current.

DR. R. G. FERGUSON, of Winnipeg, has been appointed medical superintendent of the Qu'Appelle Sanitarium pending the return of Dr. Hart, who is on active service.

BRITISH COLUMBIA

AT a meeting of the Trades and Labour Council at Victoria, on August 1st, the question of the choice of a physician in cases of accident was discussed. Employees were assured that, under the Workmen's Compensation Act, they had the right to choose a doctor to attend them and that they were not obliged to have the physician chosen by the employer.

DURING the past twelve months 1,451 patients have been treated in the Royal Columbian Hospital at New Westminster, at an average cost of \$1.73 a day for each patient. The number of hospital days was 28,920. The financial statement for the year showed a deficit of \$3,401.27.

SEVERAL business matters were discussed at a meeting of the Board of Directors of the Vancouver General Hospital on August 2nd. Outstanding accounts to the amount of \$75,000 are now on the books of the hospital and every effort to collect these accounts has been unsuccessful. It was decided, therefore, to place all overdue accounts up to December 31st, 1916, in the hands of a solicitor for collection. The members of the Board thought that Dr. McEachern, the medical superintendent, ought to be relieved of some of the business responsibility and, accordingly, it was decided that a clause should be added to the by-laws to provide that business matters should be placed entirely under the direction of the managing secretary, whose approval must be obtained in connexion with all matters involving the expenditure or collection of money.

MEDICAL COLLEGES

McGill University

DR. F. W. NAGLE, lecturer in anæsthetics at McGill University, was elected president of the American Association of Anæsthetists at the fifth annual meeting of that Association.

ARMY MEDICAL SERVICES

THE Military Cross has been conferred by His Majesty the King upon the following members of the Army Medical Corps:

CAPTAIN OTTO DEMUTH, of Grand Forks, British Columbia. The *London Gazette* states: "Whilst attending to the wounded under heavy fire, Captain Demuth's initiative and total disregard of danger enabled the evacuation of the wounded to be carried out successfully during a very trying period. No personal danger seemed too great for him to face in the performance of his duties." Captain Demuth went overseas as a private with the McGill General Hospital and before leaving England was promoted to the rank of sergeant. He was awarded his degree in medicine from McGill University in 1915, and was subsequently given a commission in the R.A.M.C. and sent to Malta. There he contracted typhoid fever. Upon his recovery he was placed in charge of an artillery group training in England and later went to France as medical officer of an Australian brigade of heavy artillery. He was wounded at the battle of the Somme a year ago and was invalided home. He returned to England, however, and from there went to France, where he was wounded the second time.

CAPTAIN GORDON ARCHIBALD MACPHERSON, C.A.M.C., for "devotion in collecting wounded".

CAPTAIN ARCHIBALD McCausland, C.A.M.C., for "dressing wounded under a heavy fire".

LIEUTENANT LANCELOT LLEWELLYN JOHNSTON, C.A.M.C., for "collecting wounded, although himself wounded".

LIEUTENANT DOUGLASS MILLER MARSHALL, C.A.M.C., for "clearing wounded from an isolated post".

LIEUTENANT FRANK GORDON PEDLEY, R.A.M.C., son of Rev. Hugh Pedley, D.D., of Montreal. Lieutenant Pedley went to a dugout hit by shell fire and saved the lives of many of the occupants. He later went through a heavy barrage to attend a badly wounded officer, whom he eventually brought back to the dressing station. On both occasions he displayed the utmost gallantry and disregard of danger. While in his fourth year in medicine at McGill University, Lieutenant Pedley went overseas with the McGill Hospital and about a year later returned to complete his course. Upon graduation he returned to England and was given a commission in the Royal Army Medical Corps.

TEMPORARY CAPTAIN DONALD ALEXANDER WARREN, R.A.M.C. "For conspicuous gallantry and devotion to duty. He continued to attend wounded for over an hour under heavy artillery and machine gun fire and in full view of the enemy. Later he established an outpost and carried on for forty-eight hours without rest under continuous fire."

CAPTAIN (ACTING MAJOR) HAROLD BUCK, C.A.M.C. "For conspicuous gallantry and devotion to duty. He led his bearers with great gallantry, and was responsible for the evacuation of a large number of wounded men. He set a fine example to all ranks."

CAPTAIN ALVA BURTON CHAPMAN, C.A.M.C., of Winnipeg. "For conspicuous gallantry and devotion to duty. One of our planes being shot down he went to the assistance. On his way he was wounded in the head. He continued on his way to the machine, which was being heavily shelled, attended to one of the occupants, and had him carried away."

CAPTAIN WARING GERALD COSBIE, C.A.M.C., of Toronto. "For conspicuous gallantry and devotion to duty. He led his bearers into the open under heavy fire, and rescued many wounded men. He worked continuously for forty-eight hours under very heavy fire."

CAPTAIN WILLIAM CREIGHTON, C.A.M.C., of Winnipeg. "For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station. He took command of a party and searched for wounded for six hours under heavy shell fire, bringing in all our wounded as well as those of the enemy. His gallantry was most inspiring to his men."

CAPTAIN WILLIAM HALE, C.A.M.C., of Toronto. "For conspicuous gallantry and devotion to duty. He established a dressing station in a forward area, and worked untiringly for sixty hours under fire, dressing the wounded. He set a fine example of courage and determination."

CAPTAIN EDWARD SHAPTER JEFFREY, C.A.M.C., of Toronto. "For conspicuous gallantry and devotion to duty. Under continuous shell fire he directed and steadied the stretcher parties. His fine example and courage enabled all wounded to be cleared before nightfall."

CAPTAIN RICHARD WELLINGTON KENNY, C.A.M.C., of Winnipeg. "For conspicuous gallantry and devotion to duty. He unceasingly attended wounded in his dressing station. He improvised an additional station in an adjacent trench and carried

on his work under shell fire. He has done previous good work in the same capacity."

CAPTAIN CHARLES KERR, C.A.M.C., of Winnipeg. "For conspicuous gallantry and devotion to duty, when in charge of regimental aid posts. He continually exposed himself to heavy fire, with the result that every wounded man was cleared as soon as his wounds were dressed. He has on several occasions shown most unselfish devotion in the care of wounded."

CAPTAIN HUGH ROY MUSTARD, C.A.M.C., of Victoria. "For conspicuous gallantry and devotion to duty in dressing the wounded of a battery in the open, exposed to heavy shell fire, for two hours. He then continued at an exposed post for three days dressing wounded, and he has on several occasions exhibited great courage and devotion of the same kind."

CAPTAIN DONALD GEORGE KENNEDY TURNBULL, C.A.M.C. "For conspicuous gallantry and devotion to duty. He showed continual fearlessness and splendid devotion in making his way under the heaviest fire to the most advanced parts of the battle-field to establish dressing stations and attend to the wounded. No undertaking seemed too perilous for him; he constantly dressed wounded in the front line, and the example he set to his stretcher bearers and carrying parties was at all times beyond all praise."

MAJOR W. TURNER, C.A.M.C.

CAPTAIN H. ARGUE, C.A.M.C.

CAPTAIN FRANK M. WALKER, R.A.M.C., of Stoney Creek, Ontario. "For gallantry and devotion while under heavy fire." Captain Walker graduated from the University of Toronto in 1913.

LIEUTENANT-COLONEL W. Webster, C.A.M.C., was recently invested with the D.S.O. and bar by His Majesty at Buckingham Palace.

THE following members of the Canadian Army Medical Corps were recently mentioned in despatches from general headquarters at Salonica: Lieutenant-Colonel W. B. Hendry, Lieutenant-Colonel E. J. Williams, Major C. S. McVicar, Major H. C. Parsons, Captain W. A. Clark, Captain J. E. Campbell, Captain J. G. Johnson, and Quartermaster J. Middleton. Nursing Sisters Lumsden, Matheson, Huston, Christie, Brock, McEachern, Gamble, McCullough and Morrison.

CAPTAIN FRANK PARK, C.A.M.C., who was taken prisoner by the Germans in June, 1916, was attached to the 4th Canadian Mounted Rifles. He was taken to the Officers' Prison Camp, at Gutensloh, but asked permission to attend the allied prisoners at the Minden Hospital, where there are two thousand prisoners. His request was granted and for some months now Captain Park has been acting as medical officer at the hospital, where he is the only British officer.

LIEUTENANT-COLONEL J. R. SPIER, C.A.M.C., is in command of the Canadian Convalescent Hospital at Bromley, England.

LIEUTENANT-COLONEL S. HANFORD MCKEE, C.A.M.C., of Montreal, is in temporary command of the Westcliffe Hospital, England, during the absence of Colonel J. D. Courtenay, C.A.M.C., who is on leave.

CAPTAIN H. A. SIMPKINS, C.A.M.C., has been transferred from the medical staff of the Spadina Convalescent Home, Toronto, to London, England.

CAPTAIN L. J. SIEBERT, CAPTAIN H. D. LIVINGSTONE, and LIEUTENANT J. M. McDONALD, of the C.A.M.C., have left for China.

DR. L. DE L. HARWOOD, superintendent of the Notre Dame Hospital, Montreal, has left Canada to join the staff of the Laval General Hospital.

CAPTAIN J. R. GOODALL, C.A.M.C., of Montreal, has been appointed deputy assistant director of medical services at Shorncliffe.

LIEUTENANT-COLONEL D. KING SMITH, C.A.M.C., of Toronto, is home on leave after an attack of fever. Lieutenant-Colonel Smith has been on duty at Salonica with the Toronto General Hospital.

MAJOR A. W. MACPHERSON, C.A.M.C., medical officer of health of Peterborough, returned to Canada at the beginning of August on two months' leave. Captain S. Burns, C.A.M.C., of Hamilton, was also home recently.

CAPTAIN A. L. McQUARRIE, C.A.M.C., has been appointed officer commanding Canadian sanitary section No. 7, in England, with jurisdiction over the Bramshott area as far as contagious diseases and sanitary matters are concerned. Captain McQuarrie, who was medical officer of health of New Westminster, British Columbia, went overseas with the 121st Battalion as regimental medical officer.

THE Brant Park Hotel at Burlington Beach, near Hamilton, is to be converted by the Military Hospitals Commission into a hospital for wounded soldiers.

LIEUTENANT RONALD NEIL STUART, V.C., D.S.O., R.N.R., who was selected by his fellow officers to receive the Victoria Cross for services in action with enemy submarine, is a Prince Edward Islander.

MAJOR H. E. PAUL, C.A.M.C., of Fort William, Ontario, is in command of the Canadian Hospital at Etchinghill, Kent, England. Members of the staff are: Captain H. K. Bates, of Toronto; Captain G. O. Scott, of Ottawa; Captain A. M. Yeates, of London, Ontario; Captain J. G. Gunn, of Aisla Craig, Ontario; Captain W. T. Lockhart, of Carnduff, Saskatchewan; Captain B. F. Steeves, of Claresholm, Alberta; Captain A. B. Jackson, of Simcoe, Ontario; Lieutenant A. V. Greaves, of Toronto; Captain M. W. Lawton, of Saskatoon, quartermaster; Captain A. L. Skerry, of Stanley, New Brunswick, chaplain; Lieutenant H. B. Boreham, of Fort William, Ontario, adjutant.

THE following officers are on the staff of the Kitchener Military Hospital at Brighton, England, which is the only Imperial hospital that is staffed exclusively by Canadians: Lieutenant-Colonel A. T. Shillington, C.A.M.C., of Ottawa, officer-in-command. Lieutenant-Colonel W. McKeown, of Toronto, second-in-command and head of the surgical department; Major Philip Burnett, D.S.O., of Montreal; Major D. A. Whitton, Major W. H. Macdonald; Captain G. C. Hale, of Toronto, head of the medical department; Captain Fleming, adjutant; Captain J. H. Slater, Captain N. T. Beeman, Captain C. D. Rilance, Captain C. A. Thrush, Captain R. N. W. Shillington, Captain A. J. B. Herbert, Captain K. C. W. Dean, Captain O. Morris, Captain W. N. Cochran, Captain

J. T. W. Boyd, Captain G. W. Leach, Captain C. A. Temple, Captain D. M. Lineham, Captain T. A. Watterson, Captain O. S. Waugh, Captain W. F. Hale, Captains J. O. Watts and C. R. Spencer, chaplains; Captain J. J. Thompson, registrar; Captain E. T. Curran, Captain W. H. Brown, Captain F. C. Campbell, Captain H. A. Sims, Captain J. L. Walker, Captain S. G. Mills, Captain R. Kirkpatrick, quartermaster; Captain J. Lewin, assistant quartermaster; Captain H. A. McComb, paymaster; Captain E. C. Cosstick, assistant paymaster and Captain C. H. Fowler, C.A.D.C., dental officer.

CAPTAIN W. B. McDERMOTT, C.A.M.C., is on duty with the Anglo-Russian Red Cross Hospital.

PROMOTIONS in the C.A.M.C.—To be temporary Captains: Temporary Lieutenants S. G. Graham, M.D., A. J. Ireland, M.D., W. S. Foote, M.B., R. J. Snider, M.B., G. W. Armstrong, M.B., W. B. Rutherford, M.B., G. Scullard, M.B., P. W. M. Curry, M.B.

THE Government House at Charlottetown, Prince Edward Island, has been offered by Lieutenant-Governor MacDonald to the Military Hospitals Commission as a convalescent hospital for returned soldiers.

DR. CLARENCE J. A. McKILLOP, of St. Thomas, Ontario, has been appointed Surgeon with the Royal Navy. Dr. McKillop graduated with honours from Western University about six months ago.

LIEUTENANT W. S. SMITH, R.A.M.C., of Kingston, Ontario, who, after serving in France and at Salonica, was invalided home some months ago suffering from rheumatism, has been given a commission in the C.A.M.C. and has returned to England.

A CANADIAN hospital has been established in Liverpool to which invalid and wounded soldiers will be sent on their way to Canada. The hospital will thus serve as an assembly centre for soldiers who will be given further treatment on their arrival in this country. Cases of sickness which develop during the voyage from Canada to England will also be sent to the Liverpool hospital. The officer

in command is Lieutenant-Colonel J. L. Biggar, C.A.M.C., who went overseas with the 13th Field Ambulance from Victoria, British Columbia. Other members of the staff are: Major T. H. MacDonald, C.A.M.C.; Captain M. G. Thompson, adjutant; Captain H. A. W. Brown, C.A.M.C.; Captain A. B. Walters, C.A.M.C.; Captain W. C. Burns, C.A.M.C.; Lieutenant W. G. Robertson, R.A.M.C., and Lieutenant Haylett, quartermaster. The hospital buildings were formerly known as the Kirkland Homes.

DR. WILMER DENNY, who graduated in medicine from Western University a few months ago, has obtained a commission as medical officer in the Royal Navy.

CAPTAIN ANDREW MACPHAIL, C.A.M.C., editor of the JOURNAL, has been promoted to the rank of Major and has been appointed to take charge of the third Canadian medical department in London. Major Macphail has been attached to Canadian Medical Headquarters since June.

CASUALTIES

Killed in Action

CAPTAIN LEWIS EMERSON CLARK, M.D., C.A.M.C., of Vancouver. Captain Clarke, who was twenty-nine years of age, graduated from McGill University in 1913.

Died of Wounds

CAPTAIN CLAUDE TREHERNE, R.A.M.C.

Died

NURSING SISTER SARAH ELLEN GARBUTT, of Oshawa, Ontario.

NURSING SISTER ETTA SPARKS, of Britannia-on-the-Bay, Ontario.

Gassed

LIEUTENANT-COLONEL A. S. DONALDSON, C.A.M.C., of Brockville, Ontario.

Wounded

CAPTAIN J. H. JONES, C.A.M.C., of Brockville, Ontario.

CAPTAIN R. D. MACKENZIE, C.A.M.C.

CAPTAIN R. W. KENNY, M.C., C.A.M.C.

CAPTAIN J. E. BLOOMER, C.A.M.C., of Basswood, Manitoba.

Canadian Literature

ORIGINAL CONTRIBUTIONS

The Public Health Journal, April, 1917:

- The problem of illegitimacy—the general practitioner's point of view . . . W. F. Clark.
- Illegitimacy—the attitude of the social worker . . . Miss M. J. Kniseley.
- The nurse midwife . . . F. J. Taussig.
- A survey of the spreading health insurance movement . . . I. M. Rubinow.
- The principles of sewage treatment . . . J. Russell Ellis.
- Infantile increase and child conservation . . . H. B. Weston.

The Canada Lancet, April, 1917:

- Incidents in the life of a physician . . . Sir James Grant.
- Points on general anæsthesia for the surgeon . . . S. Johnston.
- Pituitary extract in pregnancy and labour . . . K. C. McIlwraith.

The Canadian Journal of Medicine and Surgery, July, 1917:

- The Presidential Address, Ontario Medical Association . . . A. Dalton Smith.

The Canadian Practitioner and Review, July, 1917:

- Some observations on the use of diuretics in nephritis . . . H. A. Christian.
- The use of radium in internal medicine. F. Arnold Clarkson.

Dominion Medical Monthly, July, 1917:

The Presidential Address, Ontario Medical Association	A. Dalton Smith.
Trench shin an infectious febricitis	G. Chambers.

The Canada Lancet, July, 1917:

Some observations on the use of diuretics in nephritis	H. A. Christian.
The established value of radium as a therapeutic agent	W. H. B. Aikins.
False systems of healing. No. 1, Christian Science	J. Ferguson.

The Public Health Journal, July, 1917:

Poliomyelitis	H. W. Hill.
Clinical studies of infantile paralysis	E. J. Durocher.
Public health in the average town: Ways and means of conducting	C. A. Patterson.
Practical points in the enforcement of regulations and the difficulties of the medical officer of health	H. Ross.
How can a rural municipality employ a public health nurse?	J. F. Hanly.
Overcrowding—Why is it tolerated?	T. Watson.

Medical Societies

SASKATCHEWAN MEDICAL ASSOCIATION

THE tenth annual convention of the Saskatchewan Medical Association opened in Saskatoon on the morning of July 17th, Dr. R. Holden Love, of Saskatoon, being in the presidential chair. About sixty members were in attendance.

Dr. M. M. Seymour, commissioner of public health, spoke of the importance of administering antitoxin in cases of diphtheria if possible on the first day of illness, and Dr. S. H. Corrigan, of Lampman, gave an interesting account of "Obstetrical difficulties in country practice". The afternoon session was opened by Pro-

fessor Boyd, of the University of Manitoba, whose subject was "Vaccines, their use and abuse". This paper was followed by one on "Uterine hæmorrhages at the period of the menopause", by Dr. F. A. Corbett, of Regina. Dr. Mathers, of Winnipeg, gave an interesting paper on "Chronic indigestion". In the evening the members were taken on an automobile drive through the city, which was followed by the annual banquet, at which Dr. H. D. Weaver, president of the Saskatoon Medical Society, presided. During the course of the evening Dr. Rutherford proposed the toast to the Empire, which "stood and fought for the ideals of human liberty and freedom". Speaking of the contribution made by Canada during the present war, Dr. Rutherford referred to the spirit of comradeship that had arisen amongst the troops from the various Dominions, a comradeship that would endure long after the war was over. Dr. Dakin, replying, said that the word Empire had gained significance since the war, whereas it had been previously merely an abstract thing to the average Canadian. In speaking on the toast to "Our Country", Dr. J. R. Macdonald said that whereas the Roman Empire had comprised one hundred and twenty million people the population of the British Empire was four hundred million. Canadians were proud of their part in the Empire and were proud of the men who had gone overseas to sacrifice their lives for those at home. He thought that the national consciousness should be aroused; too little pride was taken by Canadians in their country and he thought this was due to the fact that education was provincial rather than national. Dr. Wordell said there had been three great aristocracies in the world, the Greek aristocracy of the intellect, the aristocracy of birth in Europe, and the aristocracy of wealth in the United States. He would like to see in Canada an aristocracy of service.

The next day the first part of the morning was devoted to clinics in the General Hospital under Dr. A. L. Lynch, and in St. Paul's Hospital under Dr. G. R. Peterson. These were followed by a series of motion pictures shown in the Victoria Theatre, which depicted operations by Drs. Albee and Erdman of New York, and Dr. Howard Kelly, of Baltimore. It was the first time that the films had been exhibited in this country and they were watched with the greatest interest.

As the afternoon session a number of interesting papers were read, the first being by Dr. V. Black, of Moose Jaw, entitled "Appendicitis, when to operate." Dr. W. A. Dakin, superintendent of hospitals at Regina, speaking on the subject of "Municipal

hospitals" pointed out the importance of standardizing the buildings and equipment of these hospitals. Dr. Harold Alexander, of Saskatoon, gave a paper on "Gastric lesions", which was accompanied by lantern demonstrations.

The officers elected for the year 1917-1918 were: Honorary president, Dr. Turnbull, of Moose Jaw; president, Dr. Graham, of Swift Current; first vice-president, Dr. V. Black, of Moose Jaw; second vice-president, Dr. Macmillan, of Prince Albert. Executive committee: Dr. Bawden and Dr. Wordell, of Moose Jaw; and Dr. Stewart, of North Battleford.

THE MONTREAL MEDICO-CHURURGICAL SOCIETY

THE twelfth regular meeting of the society was held Friday, March 16th, 1917, Dr. W. S. Morrow, president, in the chair.

PATHOLOGICAL SPECIMENS: Series by Dr. Horst Oertel.

1. This first specimen shows a rather unusual result of a septic thrombo-arteritis of the brachial artery. It concerns a woman confined five days before she developed symptoms of puerperal sepsis followed by a septic thrombosis of the right brachial artery. As a result sloughing of the arm and hand occurred below the thrombus in the form of an unusual and very complete, connected, desquamation of the skin over the whole hand and fingers, almost of glove-like shape and appearance. After treatment by multiple incisions, which, by the way, led to discovery of the thrombosis in the brachial artery, the woman made an uninterrupted recovery.

2. The second specimen is a tumour of the ovary which I present especially for the purpose of emphasizing the limitations of pure histological diagnosis in surgical specimens. There is perhaps not another organ which offers so many difficulties in the question of malignancy as the ovary in its growths. And these difficulties are accentuated when only parts of these are submitted for microscopic examination. I refer particularly to the papilliferous cystadenomata of the ovary. These are not at all infrequent pelvic tumours in females and they are made up of multilocular small and large cysts filled by a characteristic secretion of the so-called pseudo-mucin. Now it is at times difficult to decide from the histological picture alone whether we are dealing with a progressive, malignant tumour or with a strictly local benign tumour.

In this case we were anatomically unable to decide the question whether, in any way, the tumour conformed in greater degree to the criteria of benign growths. It was well limited, although partly adherent to surrounding structures of the pelvis and it consisted of well developed, mostly small mucoid cysts. Microscopically it does not display any of the features which we consider usually characteristic of malignancy. There does not exist excessive or irregular proliferation of the lining epithelium, no particular active or pronounced papillomatous growth into the cyst cavities; the cells themselves appear not atypical; they form only one well developed, lining layer on a basement membrane through which they do not break inside or outside of the cyst. They are a high, mucin-secreting, cylindrical epithelium. Between these cysts is a well matured, good looking, fibrillar connective tissue stroma. Histologically the tumour could therefore be regarded as benign. However, clinically, the growth behaved very differently. There, I am informed, it grows much beyond its own boundary; it has become attached to and invades and extends within the peritoneum. Biologically, therefore, the tumour carries the properties of an infiltrating malignant growth. This is a matter which is difficult to understand on simple histological grounds and features, but is not absolutely unknown to occur. As we learn more about tumours particularly of the genitals and of some of the ductless glands, we find that biological and morphological characters do not always go hand in hand and that, therefore, the diagnosis is not always expressed in morphological terms and methods of growth. It is true that a large number of them display grossly all necessary morphological evidences of malignancy; but there is an inconvenient number of others, and these are peculiarly interesting and misleading, which do not show these features, at least not as plainly as we expect. We must, therefore, be very careful in translating unhesitatingly histological terms into biological characters. Frequently specimens are submitted to the pathologist without any clinical findings, with the idea that it is not wise to prejudice or bias the opinion of the pathological anatomist. But it must be remembered that the histological findings are, like others, only evidence of unequal and relative value whose importance is, by no means, absolute; in themselves, therefore, they are not always of sufficient weight to determine the diagnosis.

Dr. Oertel's remarks were followed by a demonstration of the tumour, with slides.

DISCUSSION: Dr. W. W. Chipman: What Dr. Oertel has said simply illustrates the truth that where we clinicians need the microscope most it very often fails us. This case was definitely clinically malignant. She was aged seventy and came into hospital suffering from an enlarged abdomen and more or less showed all the signs of a wasting disease. On opening, the whole peritoneal cavity was full of this gelatinous material. This cyst grew from the left side and showed that it had definitely previously ruptured. That is, although the acini were simply lined by this single layer of epithelium there must have been a penetration associated with this growth of the epithelium as the capsule was definitely transgressed to the extent of rupture. The whole peritoneal cavity was filled with this gelatinous material—much more than the cyst could have held—so that after its extrusion from the cyst, multiplications and increase must have gone on. In other words this material must have in itself life, and once fixed on any peritoneal surface it grows. The omentum was represented by a large discoid shaped mass, four inches thick, simply permeated with this growth. The stomach was connected to it, so were all the bowels and the parietal peritoneum swollen; the capsules of the liver and spleen were, to the touch, definitely thickened. Accordingly the growth is clinical but with all the ear marks of malignancy; it has within itself a low-grade vitality which enables it to perpetuate itself, to grow upon a serous surface. The whole point has been mentioned by Dr. Oertel when he says that mere morphology does not give the life history of a tumour, does not give its biology. It would follow that the biology of a tumour is after all the essential thing and that cannot be expressed in mere terms of morphology, that according to the microscope deals only with morphology, and in so far as it only does that it must of necessity fall short of clearing up the exact nature of any given tumour. Sometimes rather parallel and yet contradictory are those tumours of the appendix, the adenocarcinomata, which morphologically are definitely malignant and yet clinically are so often innocent. Dr. Keenan collected a series of tumours, the size of a cherry or plum, which definitely are morphologically malignant and yet clinically in so far as we are able to follow the history, are definitely innocent.

Dr. Oertel: I do not want to be misunderstood that the microscope is of no value in surgical diagnosis. It is of great value, but its importance is relative with the clinical evidence and not absolutely determining. I believe, therefore, with Dr. Chipman, that

the morphology alone is at times, and unfortunately often, when we are most anxious to have definite information, insufficient for an accurate diagnosis. I myself, feel that I do not wish to make a surgical diagnosis on morphological grounds alone in the majority of cases which are submitted to me. Reliable clinical information, which really is biological observation, is most helpful, often essential, for reliable deductions. As far as these ovarian tumours are concerned we may perhaps differentiate them from the metastasizing malignant tumours. They do not display the same high tendency to get into the lymphatics and blood vessels to be carried to different parts of the organism and there to set up tumour foci. They show, however, a great tendency to transplantation and that, probably, by the method which Dr. Chipman has described. The amount of mucoid material which is produced in these individual cysts becomes excessive, they are put under high pressure, possibly burst, and empty into the peritoneal cavity. With this cells become dislocated; they are readily transplanted to serous surfaces and in this way gradually progress and generalize by continuity and transplantation. Still it must be admitted that these tumours thereby become malignant, they destroy life, and although they may lack the power of true metastases, their method of spreading is as fatal.

As far as the tumours of the appendix are concerned it is very possible that a great many of these are not true tumours at all, but simply developmental dislocations of embryonic mucous membrane which has been isolated and, in the changed environment, retains morphologically a somewhat undifferentiated appearance, remaining embryonic gland tissue. Such foci need not grow, but may of course become later the starting point of tumours.

PAPER: The paper of the evening was read by Dr. A. H. Gordon who took as his subject, "A reason for symptoms," bringing out the fact that many physicians will not take the time thoroughly to examine their patients but will often accept the patient's diagnosis of "rheumatism", "run down," etc., and class many cases as "neurasthenia", when a thorough and painstaking examination would often reveal organic disease.

Medical Societies

CANADIAN MEDICAL ASSOCIATION:—President—Dr. A. D. Blackader, Montreal. President-elect—Dr. James McKenty, Winnipeg. Secretary-treasurer—Dr. J. W. Scane, 836 University Street, Montreal.

ACADEMY OF MEDICINE, TORONTO:—President—Dr. D. J. Gibb Wishart. Secretary—Dr. J. H. Elliot, 11 Spadina Road. Treasurer—Dr. J. H. McConnell.

ALBERTA MEDICAL ASSOCIATION:—President—Dr. W. A. Lincoln, Calgary. Secretary-treasurer—Dr. D. G. Revell, University of Alberta, Edmonton South. Annual Meeting, Calgary, 1917.

ASSOCIATION OF MEDICAL OFFICERS OF THE MILITIA:—President—Lt.-Colonel A. T. Shillington, A.M.C., Ottawa. Secretary—Captain T. H. Leggett, A.M.C., Ottawa.

ASSOCIATION OF MEDICAL OFFICERS OF NOVA SCOTIA—President—Dr. George E. DeWitt, Wolfville. Secretary—Dr. W. W. Hattie, Halifax.

BRANT COUNTY MEDICAL SOCIETY:—President—Dr. E. R. Secord, Brantford. Secretary—Dr. M. N. Faris.

BRITISH COLUMBIA MEDICAL ASSOCIATION:—President—Dr. J. Glen Campbell, Vancouver. Secretary—Dr. H. W. Riggs, Vancouver.

CALGARY MEDICAL SOCIETY:—President—Dr. J. L. Allen. Secretary—Dr. J. E. Aikenhead. Treasurer—Dr. W. Shipley.

CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS:—President—Hon. J. W. Daniel, M.D., St. John. Secretary—Dr. George D. Porter, Ottawa.

Annual meeting, Ottawa, September 26th, 1917.

CANADIAN HOSPITAL ASSOCIATION:—President—Dr. H. A. Boyce, Belleville. Secretary—Dr. J. M. E. Brown, Toronto.

CANADIAN PUBLIC HEALTH ASSOCIATION:—President—Dr. J. D. Pagé, Quebec. Secretary—Dr. J. G. Fitzgerald, University of Toronto. Annual meeting, Ottawa, September 27th and 28th, 1917.

CENTRAL SOUTHERN ALBERTA MEDICAL SOCIETY:—President—Dr. J. S. Murray, Okotoks. Secretary-treasurer—Dr. G. E. Learmonth, High River.

COLCHESTER-HANTS MEDICAL SOCIETY:—President—Dr. J. W. T. Patton, Truro. Secretary—Dr. H. V. Kent, Truro.

DUFFERIN MEDICAL SOCIETY:—President—Dr. Rooney, Orangeville. Secretary—Dr. Smith, Shelburne.

EDMONTON ACADEMY OF MEDICINE:—President—Dr. C. U. Holmes. Secretary-treasurer—Dr. E. L. Garner. Library, 12 Credit Foncier Building.

ELGIN COUNTY MEDICAL ASSOCIATION:—President—Dr. G. A. Shannon, St. Thomas. Secretary-treasurer—Dr. W. F. Cornett, St. Thomas.

FRASER VALLEY MEDICAL SOCIETY:—President—Dr. DeWolfe Smith. Secretary—Dr. D. F. Carswell.

HALDIMAND COUNTY MEDICAL ASSOCIATION:—President—Dr. Hopkins, Dunnville. Secretary—Dr. Courley, Cayuga, Ont.

